Service Manual

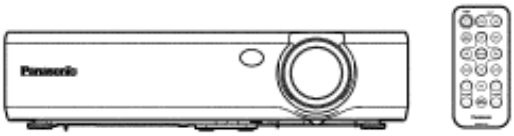
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Service Manual

LCD Projector

- PT-LC76U
  PT-LC76E
  PT-LC56U
  PT-LC56E



The service technician is required to read and follow the "Safety Precautions" and "Important Safety Notice" in this service manual.

Specifications

Power supply:
100 V - 240 V AC, 50 Hz / 60 Hz
Power consumption:
220 W [During standby (when fan is stopped): Approx. 3 W]
Amps:
2.5 A - 1.0 A
LCD panel:
Panel size (diagonal): 0.7 type (17.78 mm)
Aspect ratio: 4:3 (16:9 compatible)
Micro lens array:
PT-LC76U/E: Available
PT-LC56U/E: Not Available
Display method: 3 transparent LCD panels (RGB)
Drive method: Active matrix method
Pixels:
PT-LC76U/E: 786 432 (1 024 × 768) × 3 panels
PT-LC56U/E: 480 000 (800 × 600) × 3 panels
Lens:
Manual zoom (1 - 1.2) / focus lens
F 2.0 - 2.3, f 22.0 mm - 26.2 mm
Lamp:
UHM lamp (160 W)
Luminosity:
1 600 lm/ANSI
Scanning frequency (for RGB signals):
Horizontal scanning frequency:
15 kHz - 91 kHz
Vertical scanning frequency:
50 Hz - 85 Hz
Dot clock frequency:
100 MHz or less
YPBPR signals:
525i (480i), 525p (480p), 625i (576i), 750p (720p), 1125i (1080i)
Color system:
7 (NTSC / NTSC 4.43 / PAL / PAL-M / PAL-N / PAL60 / SECAM)
Projection size:
838.2 mm - 7 620 mm
Throw distance:
During RGB input/output:
RGB: 0.7 V [p-p], 75 Ω
G.SYNC: 1.0 V [p-p], 75 Ω
HD / SYNC: TTL automatic plus/minus polarity compatible
VD: TTL automatic plus/minus polarity compatible
VIDEO IN: Single-line, RCA pin jack
1.0 V [p-p], 75 Ω
S-VIDEO IN: Single-line, Mini Din 4-pin
Y 1.0 V [p-p], C 0.286 V [p-p], 75 Ω,
AUDIO IN: 0.5 V [rms] RCA pin jack × 2 (L-R)
Serial connector: DIN 8-pin RS-232C compatible
Cabinet:
Molded plastic (ABS/PC)
Dimensions:
Width: 297 mm
Height: 72 mm
Length: 209 mm (without lens cover)
Weight:
2.2 kg
Operating environment:
Temperature: 0°C - 40°C
(when FAN CONTROL is set to "HIGH" 0°C - 35°C)
Humidity: 20 % - 80 % (no condensation)
Certifications:
PT-LC76E/LC56E: EN60950, EN55022, EN61000-3-2, EN61000-3-3, EN55024
PT-LC76U/LC56U: UL60950, FCC Class B
<Remote control unit>
Power supply:
3 V DC (Lithium CR2025 battery × 1)
Operating range:
Approx. 7 m
(when operated directly in front of signal receptor)
Dimensions:
Width: 40 mm
Height: 86 mm
Length: 6.5 mm
Weight:
18 g (including battery)

Projection size:
838.2 mm - 7 620 mm
Throw distance:
1.1 m - 11.0 m
Optical axis shift:
6:1 (fixed)
Screen aspect ratio:
4:3
Installation:
Front / Rear / Ceiling / Desk (Menu selection method)
Speakers:
4.0 cm × 3.0 cm oval × 1
Max. useable volume output:
2 W (monaural)
Connectors:
RGB IN / OUT: Dual-line D-SUB HD 15-pin (female)
(One-line is available for input and output)
During YPBPR input/output:
Y: 1.0 V [p-p], 75 Ω
PBPR: 0.7 V [p-p], 75 Ω

Length: 6.5 mm
Weight:
18 g (including battery)
Accessories:
Card Remote control unit (TNQE239): 1
Lithium battery for remote control unit (CR2025) : 1
Power cord:
PT-LC76E/LC56E: TXFSX02PTFZ (U.K) 1
: TXFSX01PTFZ (continental) 1
PT-LC76U/LC56U: TXFSX01PSZZ 1
Video/Audio cable [K2KA2FA00001 (3.0 m)**]:** 1
RGB signal cable [K1HA15FA0002 (3.0 m)**]:** 1
Carrying bag (TPEP009): 1
Options:
Ceiling bracket: ET-PKC80
Wireless remote control unit: ET-RM200
Serial adapter (DIN 8-pin/D-sub 9-pin)**:** ET-ADSER

- Specifications are subject to change without notice.
- Weight and dimensions shown are approximate.

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

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- Macintosh is a registered trademark of Apple Computer, Inc.
- S-VGA is a registered trademark of the Video Electronics Standards Association.

All other trademarks are the property of the various trademark owners.

CAUTION
Shock hazard!
This projector uses double pole/neutral fusing. Dangerous voltage is present on some components and printed wiring traces.
Lithium Battery
Risk of explosion if battery is replaced by an incorrect type. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.
(See also Operating Instructions.)

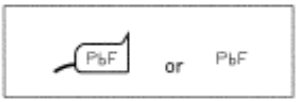
Precaution
If using of this projector at high elevations (above 1 400 m), set FAN CONTROL to HIGH. (Refer to "Option settings" in Operating Instructions.)
Failure to observe this may cause malfunctions.
Never use this projector at an elevation of 2 700 m or higher.
Using this projector at high elevations, consult your dealer or Authorized Service Center about preparations.

About lead free solder (PbF)

This projector is using the P.C.Board which applies lead free solder. The use of lead free solder is recommended from the standpoint of antipollution for the global environment in service.
Notes:

- Lead free solder: Sn-Ag-Cu (tin, silver and copper) has a higher melting point (approx. 217℃) than standard solder. Typically, the melting point is 30℃ to 40℃ higher. When servicing, use a high temperature soldering iron with temperature limitation function and set it to 370±10℃.
- Be precautious about lead free solder: Sn-Ag-Cu (tin, silver and copper) will tend to splash when heated too high (approx. 600℃ or higher).
- Use lead free solder for the P.C.Board (specified on it as "PbF") which uses lead free solder. (When you unavoidably use lead solder, use lead solder after removing lead free solder. Or be sure to heat the lead free solder until it melts completely, before applying lead solder.)
- After soldering to double layered P.C.Boards, check the component side for excess solder which may flow onto the opposite side.

About the identification of the lead free solder P.C.Board
For the P.C.Board which applies lead free solder, the symbol as shown in the figure below is printed or stamped on the surface or the back of P.C.Board.



For US

IMPORTANT SAFETY NOTICE

There are special parts used in Panasonic LCD Projectors which are important for safety. These parts are shaded on the schematic diagram. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of PANASONIC BROADCAST & TELEVISION SYSTEMS COMPANY.

WARNING:
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be

Navigator

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equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Any unauthorized changes or modifications to this equipment will void the users authority to operate.

1 Safety Precautions

1.1 General Guidelines

1.2 Leakage Current Check

1.3 UV Precaution and UHM Lamp Precautions

1.1 General Guidelines

- For continued safety, no modification of any circuit must be attempted.
- Unplug the power cord from the power outlet before disassembling this projector.
- It is advisable to use an isolation transformer in the AC power line before the service.
- Observe the original lead dress during the service. If a short circuit is found, replace all the parts overheated or damaged by the short circuit.
- After the service, all the protective devices such as insulation barriers, insulation papers, shields, and isolation R-C combinations must be properly installed.
- After the service, check the leakage current to prevent the customer from getting an electric shock.

1.2 Leakage Current Check

1. Prepare the measuring circuit as shown in Fig.1.

   Be sure to use a voltmeter having the performance described in Table 1.

Fig. 1

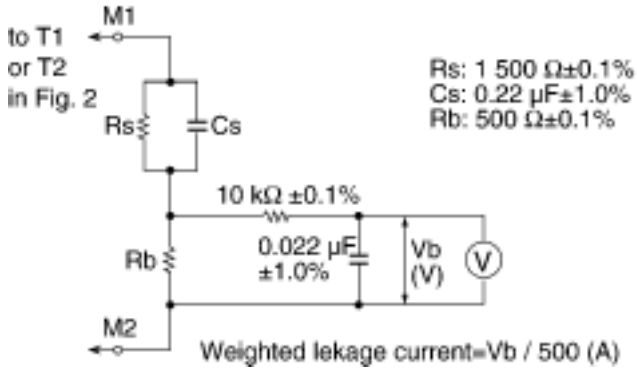
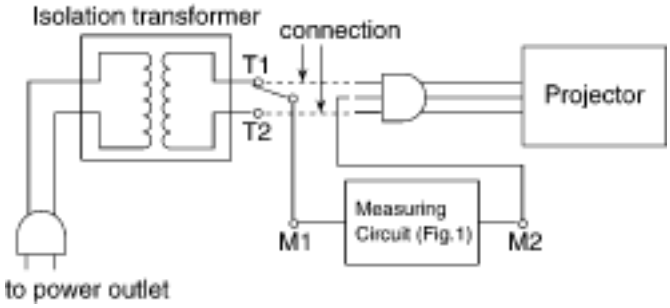


Table 1

	Performance
Voltmeter (rms reading)	Accuracy: ≤ 2% Input resistance: ≥ 1 MΩ Input capacitance: ≤ 200 pF Frequency range: 15 Hz to 1 MHz

Fig. 2



2. Assemble the circuit as shown in Fig. 2. Plug the power cord in a power outlet.

3. Connect M1 to T1 according to Fig. 2 and measure the voltage.

4. Change the connection of M1 from T1 to T2 and measure the voltage again.

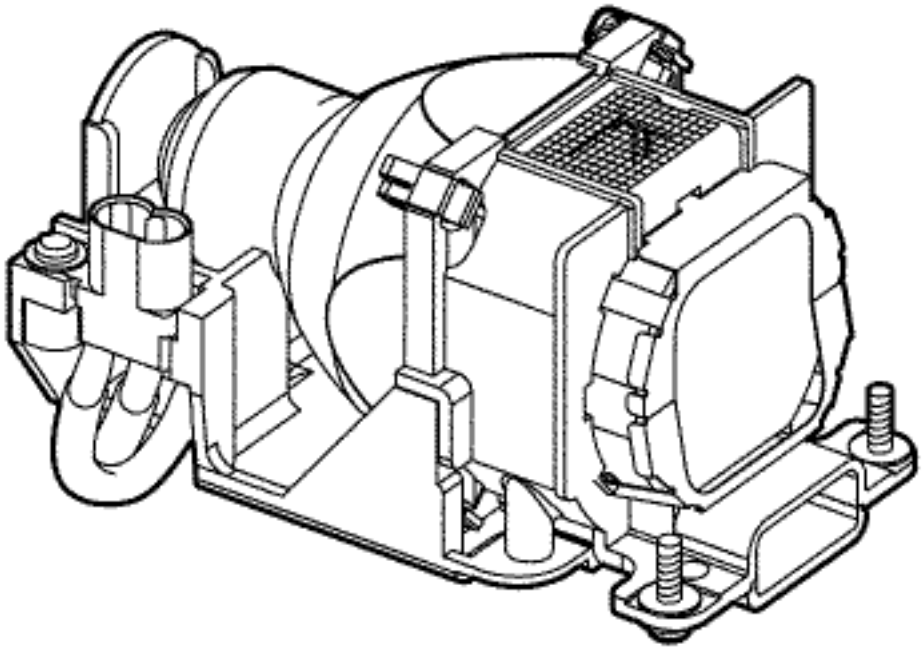
5. The voltmeter must read 0.375 V or lower in both of steps 3 and 4. This means that the current must be 0.75 mA or less.

6. If the reading is out of the above standard, the projector must be repaired and rechecked before returning to the customer because of a possibility of an electric shock.

1.3 UV Precaution and UHM Lamp Precautions

- Be sure to unplug the power cord from the power outlet when replacing the lamp.
- Because the lamp reaches a very high temperature during its operation, wait until it cools completely when replacing the Lamp Unit.
- The lamp emits small amounts of UV-radiation, avoid direct-eye contact with the light.
- Because the high pressure lamp involves a risk of explosion, never touch the lamp wire lead during the service. (See Fig. 3)

Fig.3



2 Ext Option

This projector has EXT OPTION in addition to standard on-screen menus.

- There are SELF CHECK and SERVICE MODE for service, etc.

2.1 Procedure to enter EXT OPTION

2.2 EXT OPTION Menu and Functions

2.3 Canceling EXT OPTION

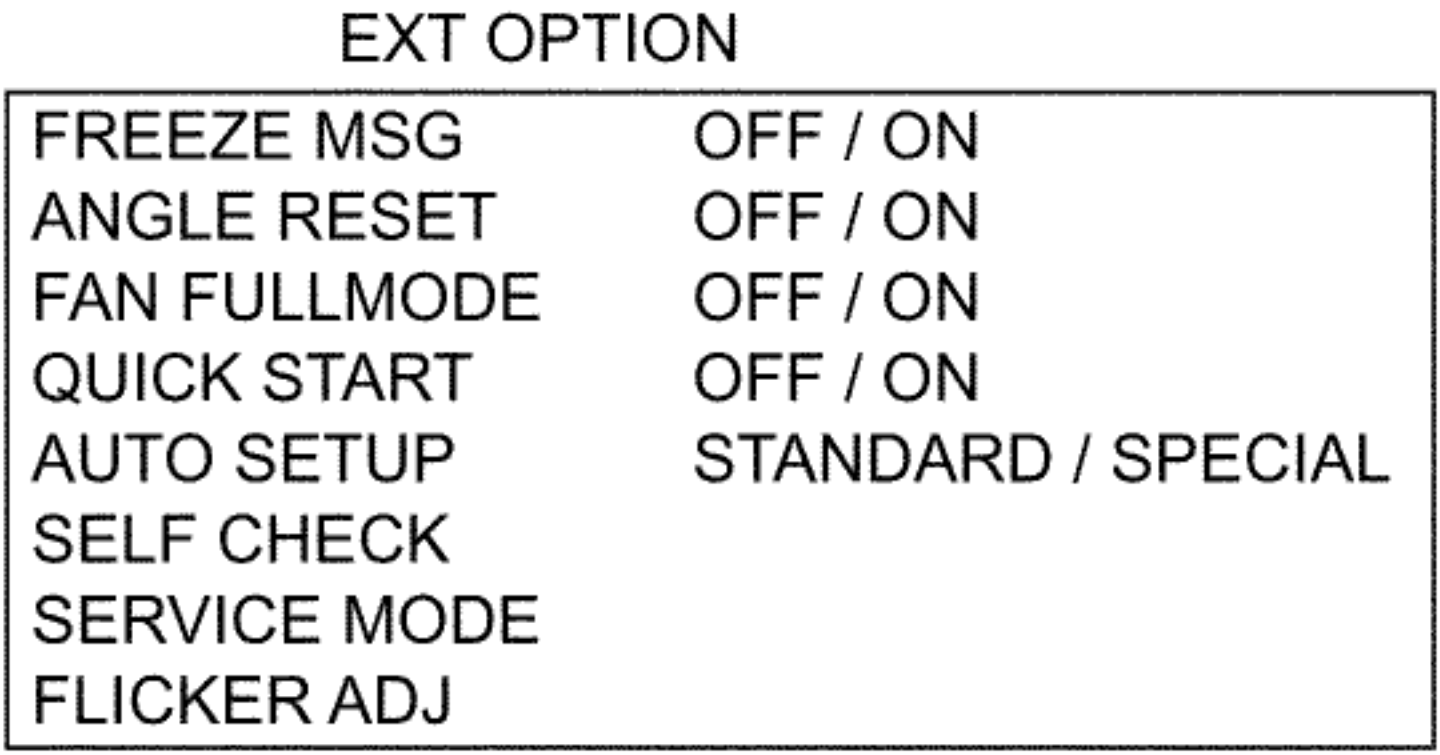
2.1 Procedure to enter EXT OPTION

1. Press "MENU" button on the main unit or remote control unit to display "MENU" screen, then select "OPTION1" and press "ENTER" button.

2. Select "OSD" on "OPTION1" menu and press "ENTER" button 3 seconds or longer.

   MENU → OPTION1 → OSD

2.2 EXT OPTION Menu and Functions



- FREEZE MSG

  Switching ON/OFF "FREEZE" on-screen display

- ANGLE RESET

  Switching ON/OFF "AUTO KEYSTN (Automatic Keystone)" reference level setting

  Note:

  - Normally, do not select. (Angle reset data will be rewritten.)

- FAN FULLMODE

  Setting the cooling fan motor rotation speed

  - Switching ON "FAN FULLMODE", the rotation level of the fan becomes high-speed rotation (fixed). Moreover, when "FAN FULLMODE" is ON, changing "FAN CONTROL" in OPTION2 becomes impossible (setting FAN FULLMODE is given priority more thanFAN CONTROL).

- QUICK START

Switching ON "QUICK START", a green pattern is displayed when the lamp lights up, and the lamp lighting can be checked at once.

Note:

- Keep this function in OFF, except when there is a demand.

- AUTOSETUP

  Setting AUTO SETUP mode

  - STANDARD: To set the normal mode (the dot clock is adjusted strictly))
  - SPECIAL: To set the special mode (the dot clock is adjusted roughly)

  Note:

  - Do not change the initial setting (STANDARD).

- SELF CHECK

  To enter the self-check mode

- SERVICE MODE

  To enter the service mode

- FLICKER ADJ

  To enter the flicker adjustment mode

2.3 Canceling EXT OPTION

Press "MENU" button on the main unit or remote control unit.

3 Self-Check Mode

This mode is used to narrow down the location of the failure.

3.1 Procedure to enter the self-check mode

3.2 Self Check Display and Contents

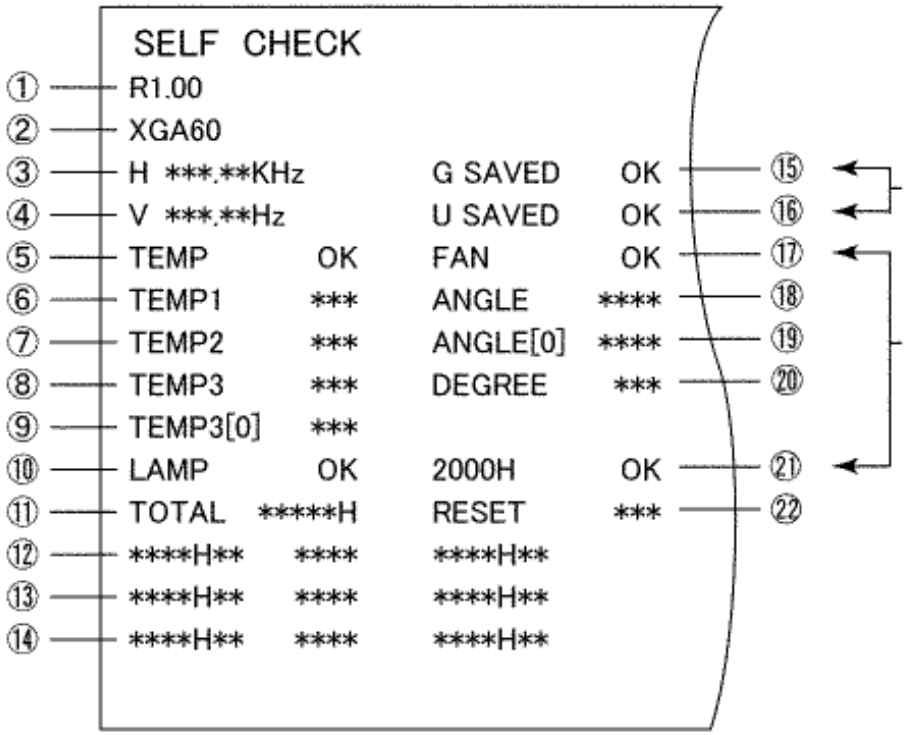
3.3 Canceling the self-check mode

3.1 Procedure to enter the self-check mode

Select "SELF CHECK" on "EXT OPTION" menu and press "ENTER" button on the main unit or remote control unit.

3.2 Self Check Display and Contents

Display example



* This display is an example and the display contents depend on the input signal mode.

- The result of items "G SAVED" and "U SAVED", "OK" is displayed for OK and "NG" is displayed for NG.
- The result of items "TEMP", "FAN", "LAMP" and "2000H", the OK display becomes red characters when shutting down because abnormality happened last time.

	Display Contents	Remarks
①	Microcomputer Version Display	Software Version
②	Resolution Name	Different display according to the input signal
③	Horizontal Signal Frequency	RGB or YP_BP_R signal reception only
④	Vertical Signal Frequency	
⑤	Temperature Abnormality Check	Cause of Lamp Malfanction
⑥	Thermosensor 1 Measurement Value *1	Around Air Outlet (A/D conversion value: 0 - 255)
⑦	Thermosensor 2 Measurement Value *1	Around Air Inlet (A/D conversion value: 0 - 255)
⑧	Thermosensor 3 Measurement Value	Around Tilt Sensor (A/D conversion value: 0 - 1 023)
⑨	Thermosensor 3 Reference Value	Thermosensor 3 A/D Conversion Value (0 - 1 023) at angle reset
⑩	Lamp Abnormality Check	Cause of Lamp Malfanction

⑩	Lamp - Abnormality Check	Cause of Lamp Malfanction	
⑪	Total Usage Time	Projector Cumulative Usage Time	
⑫	Lamp ON - Cumulative Usage Time / Frequency / Cumulative Usage Time	Current	Cumulative Usage Time (actual time), ON Frequency and Cumulative Usage Time (conversion time for 220 W) of the lamp are shown from the left.
⑬		Second	
⑭		First	
⑮	Gamma Correction Data Check	It is distinguished whether gamma data is stored in the flash ROM.	
⑯	Color Unevenness Correction Data Check	It is distinguished whether color unevenness correction data is stored in the flash ROM.	
⑰	Fan Stop Check	Cause of Lamp Malfanction	
⑱	Tilt Sensor Measurement Value	Voltage Value (0.00 - 3.30)	
⑲	Tilt Sensor Reference Value	Tilt Sensor Voltage Value (0.00 - 3.30) at angle reset	
⑳	Tilt Degree *2	Degree of tilt of the projector, that is a value by which temperature correction is given to the tilt sensor A/D conversion value. (When automatic keystone, the keystone distortion is corrected with this value.)	
㉑	Lamp - Judgment for Cumulative Usage more than 2 000 h *3	Judgment for Replacement Time of Lamp	
㉒	Lamp - Reset Frequency of Cumulative Usage Time	Reset Frequency (0 - 255)	

*1 When detected abnormal temperature (high temperature around the air inlet and/or outlet ports, large difference between temperature around the air inlet/outlet ports), TEMP indicator turned on. If arriving at the critical temperature, the power supply will be shutdown automatically and the indicator will flash.

*2 When "AUTO KEYSTN (Automatic Keystone)" is set to ON, the keystone distortion is corrected automatically with this value during automatic setup.

*3 Warning of the lamp cumulative usage time and shutdown use the conversion time for 220 W.

3.3 Canceling the self-check mode

Press "MENU" button on the main unit or remote control unit.

4 Service Mode

This mode is used to display seven kinds of test patterns [Horizontal lines, Vertical lines, Dots, Crosshatch, White cross, Black cross and White (No pattern)] in the four colors (White, Red, Green and Blue)..

Note:

- On the service mode, displays above patterns by each color without test equipment such as PC or SG. Use the service mode for simplified adjustments by your eyes and so on.

4.1 Procedure to enter the service mode

4.2 Canceling the service mode

4.1 Procedure to enter the service mode

Select "SERVICE MODE" on "EXT OPTION" menu and press "ENTER" button on the main unit or remote control unit.

Note:

- In the service mode, pressing the up-arrow "

  ▲" or down-arrow "

  ▼" button allows the test pattern selection and theleft-arrow "

  ◀" or right-arrow "

  ▶" button the color selection (White / Red / Green / Blue).

4.2 Canceling the service mode

Press "MENU" button on the main unit or remote control unit.

5 Flicker Adjustment Mode

If replacing the optical parts (Analysis / LCD / Lens block) of this projector, enter the flicker adjustment mode and minimize the flicker.

Also when replacing the analysis block or A-P.C.Board (assembly), execute 8.7. "Flicker Adjustment".

5.1 Procedure to enter the adjustment mode

5.2 Adjustment Display and Contents

5.3 Canceling the flicker adjustment mode

5.1 Procedure to enter the adjustment mode

Select "FLICKER ADJ" on "EXT OPTION" menu and press "ENTER" button on the main unit or remote control unit.

Note:

"DESK setting (blue)" is displayed when entering the adjustment mode.



Adjustment Display when DESK setting

5.2 Adjustment Display and Contents

- Setting value is increased and decreased with the right-arrow "

  ▶" and left-arrow "

  ◀" buttons.

  "

  ◀": Decrease, "

  ▶": Increase

  - Adjust the setting value to minimize the flicker on the screen.
  - Execute the adjustment by 6 patterns below.

- The pattern (adjustment display) is switched with the up-arrow "

  ▲" and down-arrow "

  ▼" buttons.

  "

  ▲": Forward direction, "

  ▼": Reverse direction

  - There are 6 patterns of "DESK setting (blue)", "DESK setting (red)", "DESK setting (green)", "CEILING setting (blue)", "CEILING setting (red)" and "CEILING setting (green)".
  - The setting value is saved into this projector when the pattern is switched.

5.3 Canceling the flicker adjustment mode

Press "MENU" button on the main unit or remote control unit.

Note:

When "MENU" button is pressed, the setting value at that time is saved into this projector and the adjustment mode is canceled.

6 Using the SERIAL Connector

The serial connector which is on the back connector panel of the projector conforms to RS-232C standard. This projector can be controlled by a PC which is connected as shown in "6.1. Connection".

For controlling this projector by a PC, requires communication software on the market, and inputs control commands according to communication settings and basic format below.

6.1 Connection

6.2 Pin Layout and Signal Names for SERIAL Connector

6.3 Communication Settings

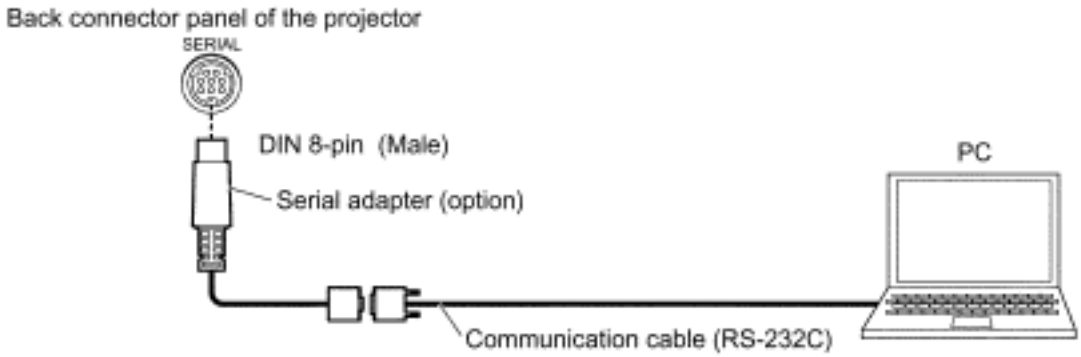
6.4 Basic Format

6.5 Control/ Query Commands

6.6 Communication Cable Specifications

6.7 Signal Selector Connecting Cable Specifications

6.1 Connection



Note:

Use a proper communication cable which is suitable for the PC to connect the optional serial adapter, which is connected with SERIAL connector of this projector, and the PC.

6.2 Pin Layout and Signal Names for SERIAL Connector



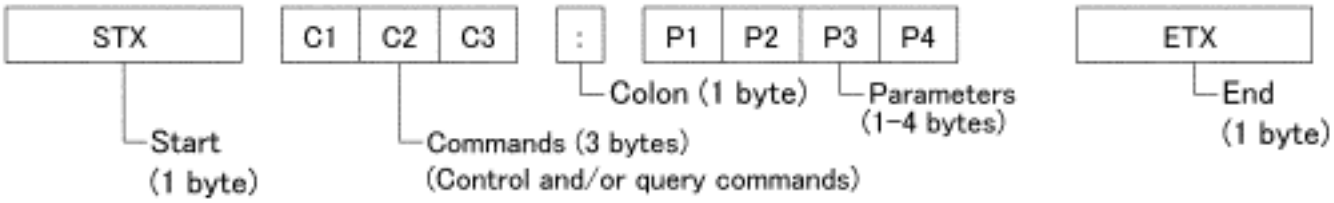
Pin No	Signal Name	Contents
3	RXD	Receive data
4	GND	Ground
5	TXD	Transmit data
1	---	
2	---	Connected internally
6	---	
7	---	NC
8	---	NC

6.3 Communication Settings

Signal Level	Contents		Description
Sync. method		Asynchronous	Synchronizes every 1 character (8 bits)
Baud rate	Conforms to	9 600 bps	Data transfer speed
Parity	RS-232C	None	Error detection method
Character length	standard	8 bits	Number of bit composing 1 character
Stop bit		1 bit	Uses stop bit when asynchronous method
X parameter		Not used	
S parameter		Not used	

6.4 Basic Format

The data sent from the PC to the projector is transmitted in the format shown below.



Notes:

- If sending multiple commands, check that a call back has been received from the projector for 1 command before sending the next command.
- When a command which does not require parameters is sent, the colon (:) is not required.

6.5 Control/ Query Commands

Control Commands

Command Name (Parameter format is shown in <>)	Function / Contents	Call back from Projector (Parameter format is shown in <>)	Minimum Value of Parameter	Maximum Value of Parameter
PON *	POWER ON	PON	———	———
POF *	POWER OFF	POF	———	———
AVL :<pl>	VOLUME	AVL :<pl>	0	63
IIS :<input signal>	INPUT SELECT	IIS :<input signal>	———	———
OST	STANDARD	OST	———	———
OFZ :<off_on>	FREEZE	OFZ :<off_on>	0	1
OEN :	ENTER	OEN	———	———
VPM :<picture mode>	PICTURE MODE	VPM :<picture mode>	———	———
<NAT>	Natural	<NAT>	———	———
<STD>	Standard	<STD>	———	———
<DYN>	Dynamic	<DYN>	———	———
AUU	VOLUME UP	AUU		
AUD	VOLUME DOWN	AUD		
OMN	MENU	OMN		
OCU	CURSOR UP	OCU		
OCD	CURSOR DOWN	OCD		
OCL	CURSOR LEFT	OCL		
OCR	CURSOR RIGHT	OCR		
OAS	AUTO SETUP	OAS		
OSH *	SHUTTER	OSH		
OIX	INDEX WINDOW (Double)	OIX		
DZU	D.ZOOM UP	DZU		
DZD	D.ZOOM DOWN	DZD		
OLP :<lamp power> *	LAMP POWER	OLP :<lamp power>	0	1

* Do not transmit the PON, POF, OSH and/or OLP commands continuously in a short time.
The lamp may be damaged and/or cause malfunctions.

Query Commands

Query Command	Contents	Call back from Projector (Parameter format is shown in < >)
QPW	POWER CONDITION	〈power condition〉
QIN	INPUT SIGNAL	〈input signal〉
QAV	VOLUME LEVEL	〈pl〉
QVC	COLOR LEVEL	〈pl〉
QVT	TINT LEVEL	〈pl〉
QVB	BRIGHT LEVEL	〈pl〉
QVR	CONTRAST LEVEL	〈pl〉
QVS	SHARPNESS LEVEL	〈pl〉
QWR	WHITE BALANCE LEVEL (RED)	〈pl〉
QWG	WHITE BALANCE LEVEL (GREEN)	〈pl〉
QWB	WHITE BALANCE LEVEL (BLUE)	〈pl〉
QHP	H-POSITION LEVEL	〈pl〉
QVP	V-POSITION LEVEL	〈pl〉
QCP	COLOR PHASE LEVEL	〈pl〉
QDC	DOT CLOCK LEVEL	〈pl〉
QSP	INSTALLATION	〈installation〉
QLG	LANGUAGE	〈language〉
QPM	PICTURE MODE	〈NAT〉=Natural 〈STD〉=Standard 〈DYN〉=Dynamic
QFZ	FREEZE	〈off_on〉
QLP	LAMP POWER	〈lamp power〉
Q$L	LAMP ON TIME	〈acctch〉
QSH	SHUTTER	〈off_on〉
QKS	KEYSTONE	〈pl〉
QRI	RGB2 SELECT	〈RGB2 select〉
QTE	COLOR TEMPERATURE	〈color temp.〉

Parameters

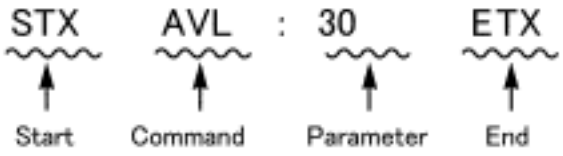
Parameter Format	Parameter Size (Byte)	Parameter Definition
〈pl〉	3 (provided that approves of 1 byte or 2 bytes when control)	Decimal notation without plus/minus sign (0 to 999), Decimal notation with plus/minus sign (−99 to +99) (Returns 3 bytes call back from the projector. Decimal notation without plus/minus sign (000, 001, 002, ..., 999), Decimal notation with plus/minus sign (−99, −98, ..., −01, +00, +01, ..., +99))
〈off__on〉	1	0=OFF, 1=ON
〈input signal〉	3	VID=VIDEO, SVD=S-VIDEO, RG1=RGB1, RG2=RGB2
〈installation〉	1	0=FRONT/DESK, 1=REAR/DESK, 2=FRONT/CEILING, 3=REAR/CEILING
〈language〉	3	ENG=English, DEU=German, FRA=French, ESP=Spanish, ITA=Italian, JPN=Japanese, CHI=Chinese
〈power condition〉	3	000=Power OFF, 001=Power ON
〈acctch〉	4	Decimal notation without plus/minus sign: 0000 hour to 9999 hours
〈lamp power〉	1	0=LOW, 1=HIGH
〈color temp.〉	1	0=LOW, 1=STD, 2=HIGH
〈RGB2 select〉	3	2IN=INPUT, 2OU=OUTPUT

* If an incorrect command is sent from the PC, the "ER401" command will be sent from the projector to the PC.

[Example]

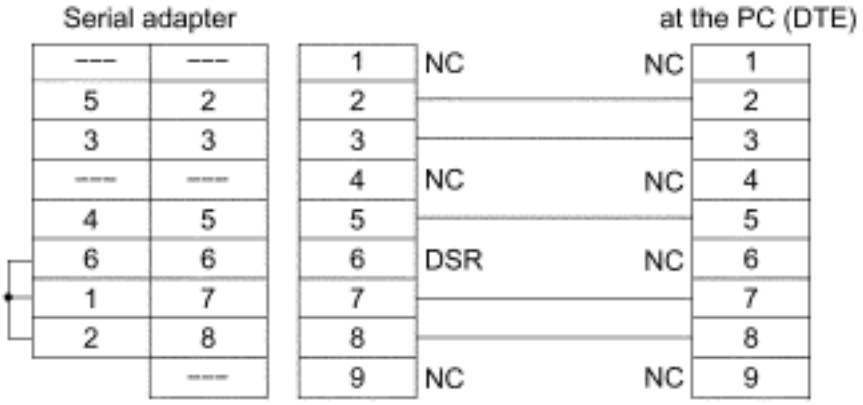
When controls the audio volume to +30 by a PC

(Sends commands as the following:)



- When a command which does not require parameters is sent, the colon (:) is not required.

6.6 Communication Cable Specifications



6.7 Signal Selector Connecting Cable Specifications

When connecting to a signal selector (ex. TW-SWS62J), use a cable with specifications below.

Connecting method: Connects a video signal cable from the signal selector to "VIDEO IN", and an RGB signal cable to "RGB1 IN".

At the signal selector D-sub 9p (male)		At the serial adapter (DCE) D-sub 9p (male)		Serial adapter	
Signal Name	Pin No.	Pin No.	Signal Name	Pin No. (cable side)	Pin No. (projector side)
NC	1	1	NC	---	---
RD Receive data	2	2	SD Transmit data	2	5
SD Transmit data	3	3	RD Receive data	3	3
NC	4	4	NC	---	---
GND Ground	5	5	GND Ground	5	4
NC	6	6	DSR	6	6
RS Transmit request	7	7	CS Transmit permission	7	1
CS Transmit permission	8	8	RS Transmit request	8	2
NC	9	9	NC	---	

Note:

Set VP control terminal switch of the signal selector to VP TYPE "B".

7 Disassembly Instructions

Warning:

- Be sure to unplug the power cord from the power outlet before disassembling this projector.

Caution:

- While turning over a printed circuit board, be sure to put a insulating material under it to prevent a short circuit.
- Printed circuit boards and wires must not be pulled forcibly, but be handled carefully.
- Connectors also must be handled carefully.
- After repairing this projector, be sure to put back the wires and connectors to the original condition.

7.1 Printed Circuit Board and Main Parts Location

7.2 Removal of Upper Case

7.3 Removal of A-P.C.Board

7.4 Removal of S2-P.C.Board

7.5 Removal of P-Module

7.6 Removal of B/Q-Module

7.7 Removal of S1-P.C.Board

7.8 Removal of K-P.C.Board

7.9 Removal of Lamp Unit

7.10 Removal of Analysis Block, LCD Block and Lens

7.11 Replacement of LCD Panel

7.12 LCD Panel Discrimination

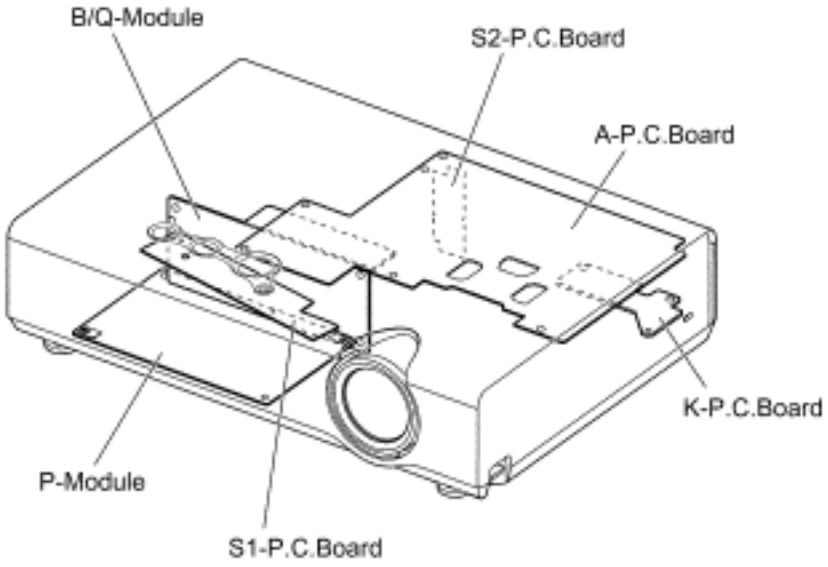
7.13 LCD Panel Combination

7.14 Replacement of Polarizer

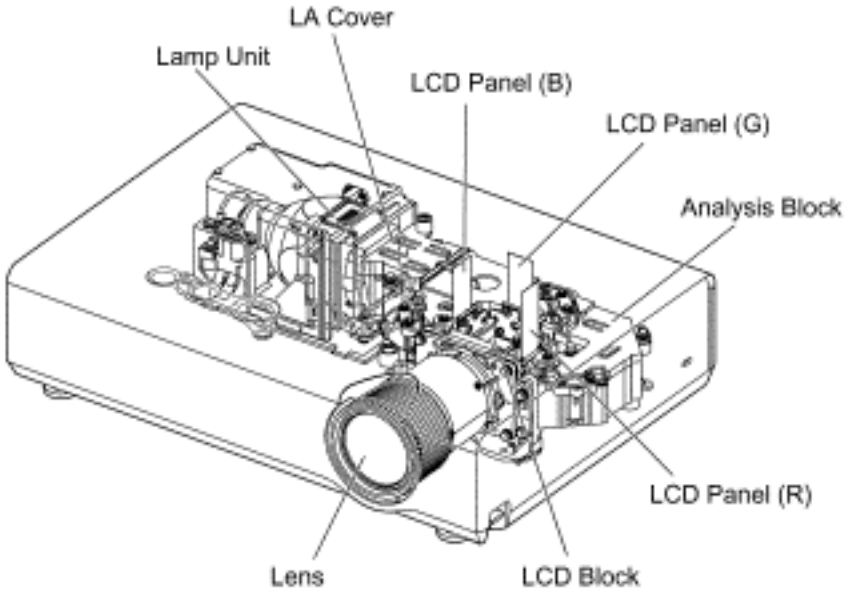
7.15 Replacement of PBS Array (Analysis Block)

7.1 Printed Circuit Board and Main Parts Location

Electrical Parts



Optical Parts

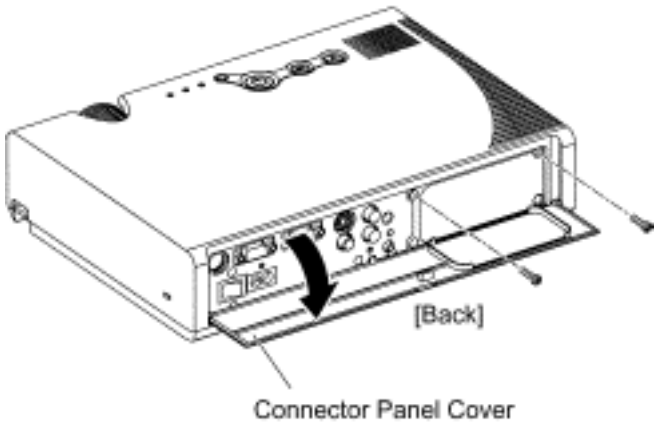


7.2 Removal of Upper Case

1. Open the connector panel cover in back ob the projector, then unscrew the 2 screws.

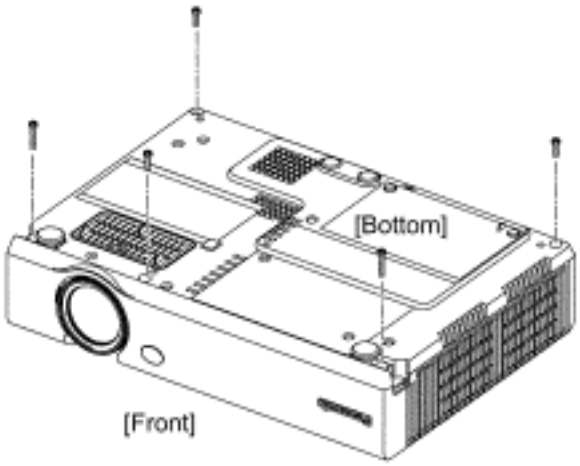
   Note:

   - After removing the screws, close the connector panel cover for the damage prevention.



2. Turn the projector upside down.

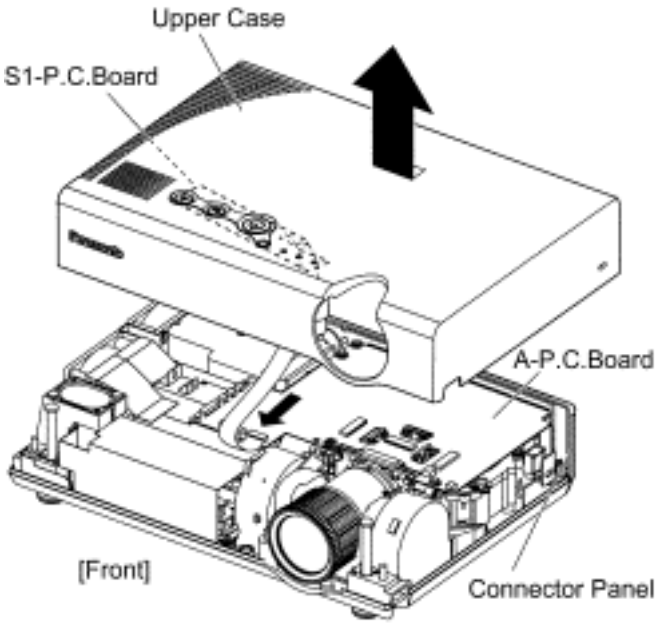
3. Unscrew the 5 screws.



4. Return the projector to the normal position.

5. While shifting the upper case a little, disconnect the hook portion of it and the connector panel, then lift the upper case upward (approx. 10 cm).

6. Disconnect the cable from S1-P.C.Board (connector A8 on A-P.C.Board) and remove the upper case.


Upper Case
S1-P.C.Board
A-P.C.Board
[Front]
Connector Panel

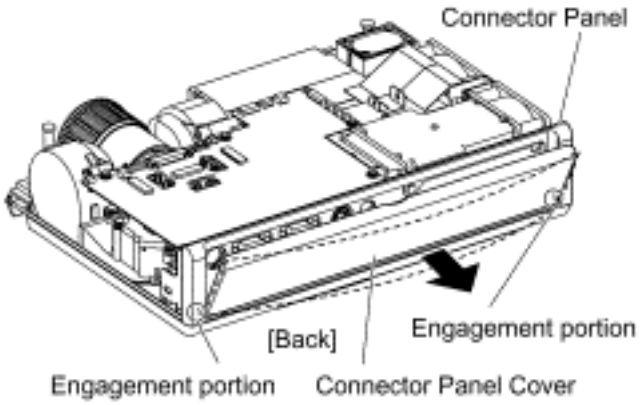
7.3 Removal of A-P.C.Board

1. Remove the upper case according to the section 7.2. "Removal of Upper Case".

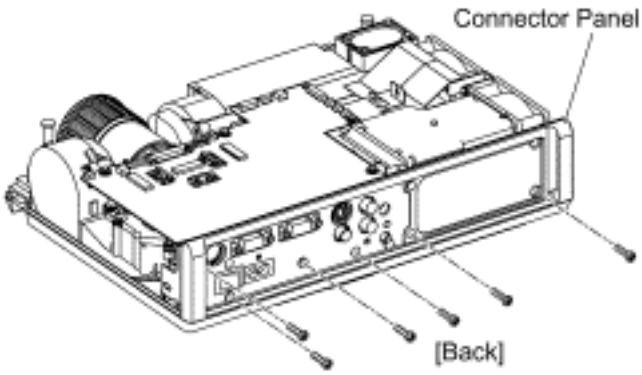
2. While transforming the connector panel cover a little as shown in figure below, disconnect the engagement portion with the connector panel, then remove the connector panel cover.

   Note:

   - Work carefully not to damage the connector panel cover.

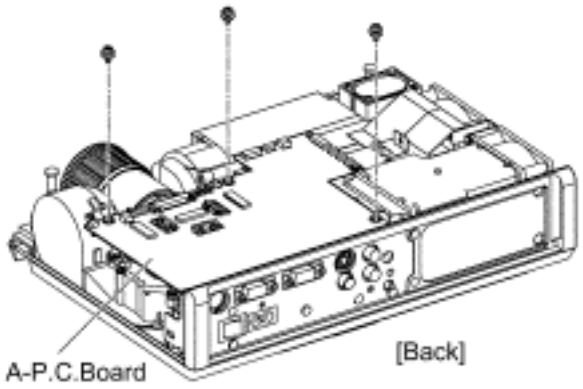


3. Unscrew the 6 screws and remove the connector panel.

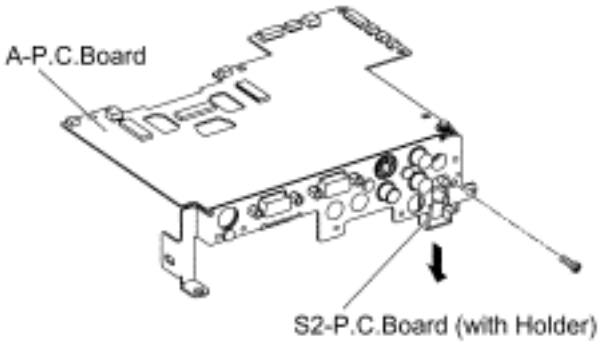


4. Disconnect the connectors from/to the A-P.C.Board.

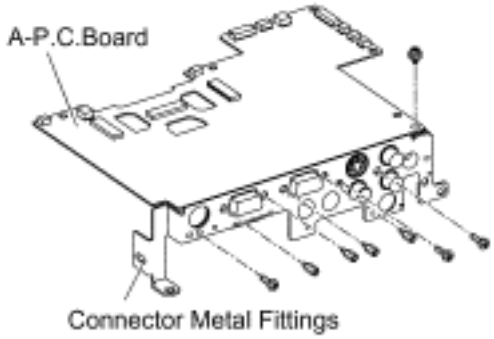
5. Unscrew the 3 screws and remove the A-P.C.Board block.



6. Unscrew the 1 screw, and remove the S2-P.C.Board (with holder) while disconnecting the connector A7 on A-P.C.Board.



7. Unscrew the 8 screws and remove the connector metal fittings.



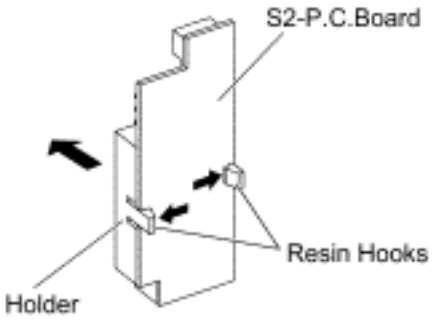
7.4 Removal of S2-P.C.Board

1. Remove the S2-P.C.Board (with holder) according to the steps 1 through 6 in the section 7.3. "Removal of A-P.C.Board".

2. Remove the holder while expanding the resin hooks outside.

   Note:

   - Work carefully not to damage the resin hook.

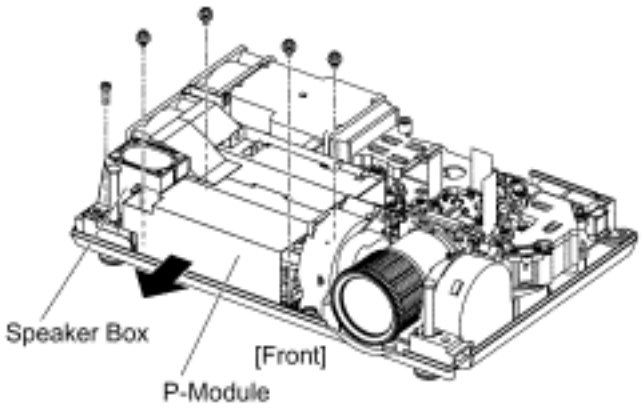


7.5 Removal of P-Module

1. Remove the A-P.C.Board block according to the steps 1 through 5 in the section 7.3. "Removal of A-P.C.Board".

2. Unscrew the 1 screw and remove the speaker box.

3. Unscrew the 4 screws, and remove the P-Module while disconnecting the connectors on P-Module.



7.6 Removal of B/Q-Module

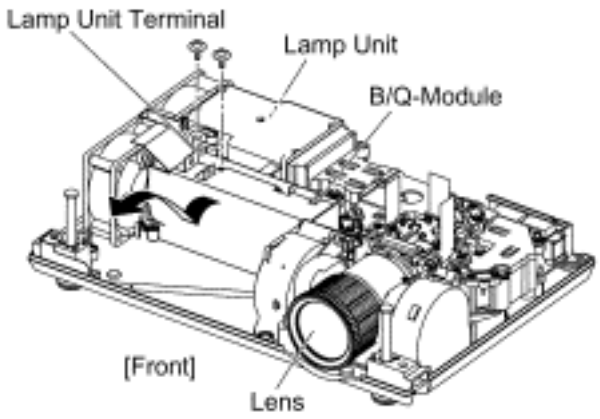
1. Remove the P-Module according to the section 7.5. "Removal of P-Module".

2. Unscrew the 2 screws fixing the lamp unit terminal.

   Note:

   - The lamp unit terminal will be removed from the lamp unit while working of the next step.

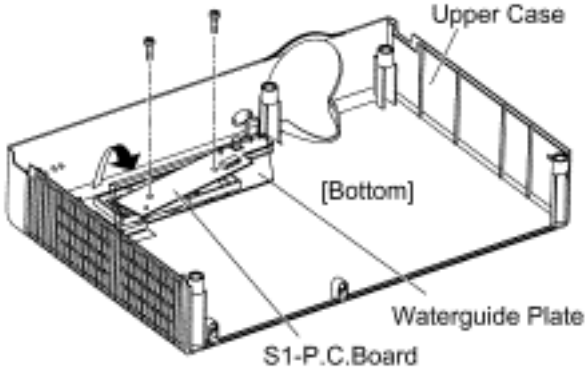
3. Remove the B/Q-Module while inclining it forward (lens side).



7.7 Removal of S1-P.C.Board

1. Remove the upper case according to the section 7.2. "Removal of Upper Case".

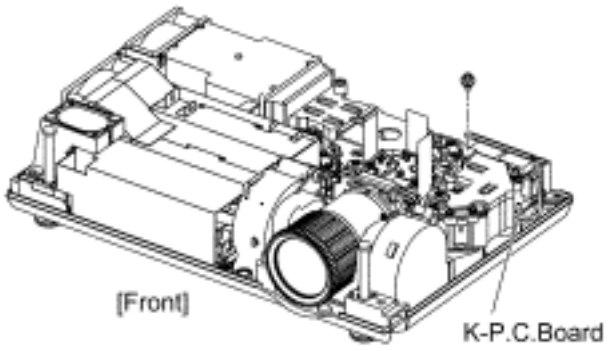
2. While lifting the waterguide plate, unscrew the 2 screws and remove the S1-P.C.Board.



7.8 Removal of K-P.C.Board

1. Remove the A-P.C.Board block according to the steps 1 through 5 in the section 7.3. "Removal of A-P.C.Board".

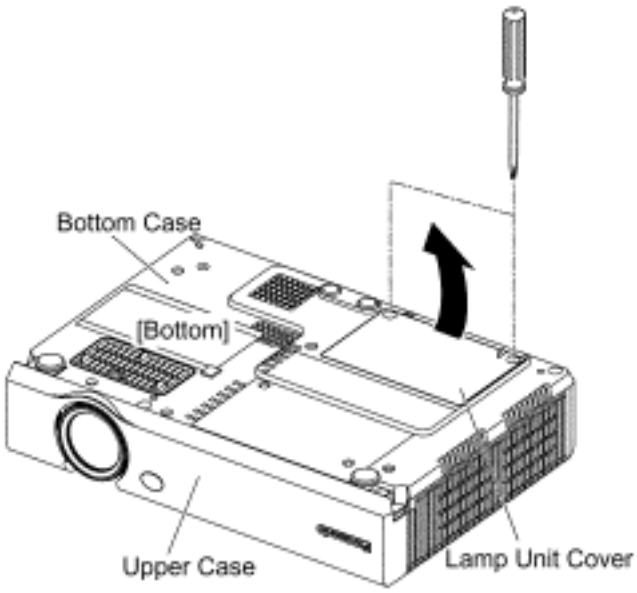
2. Unscrew the 1 screw and remove the K-P.C.Board.



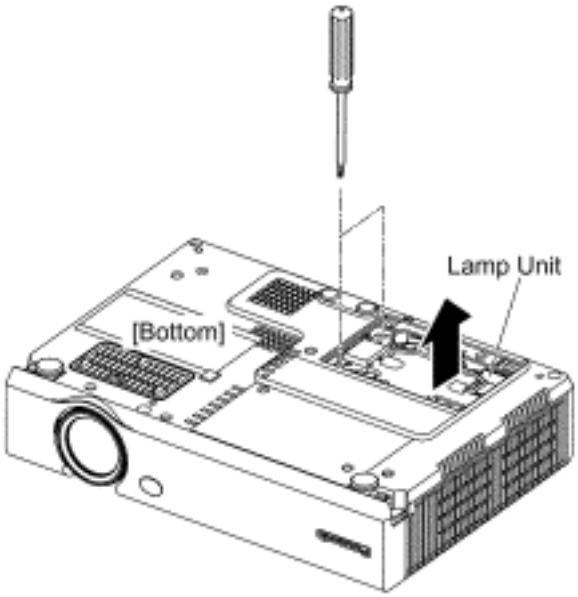
7.9 Removal of Lamp Unit

1. Turn the projector upside down.

2. Loosen the 2 screws until they idle, lift the lamp unit cover to remove.

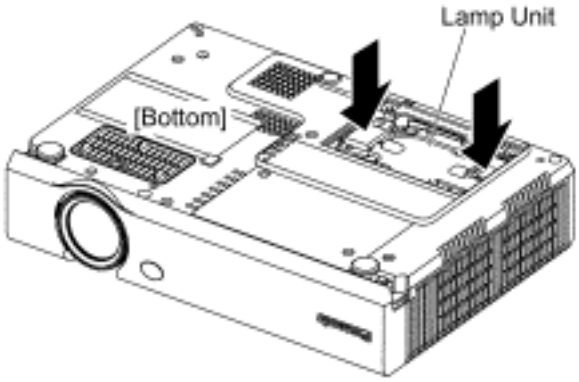


3. Loosen the 2 screws fixing the lamp unit until they idle, remove the lamp unit with the handle.



Note:

- When assembling, insert the lamp unit (or a new one) while making sure that the direction of insertion is correct. Then, press the connector side and the opposite side of the lamp unit (arrow positions shown in the figure below), and confirmthe lamp unit is inserted securely. After confirming, tighten the 2 screws fixing the lamp unit, and attach the lamp unit cover.


Lamp Unit
[Bottom]

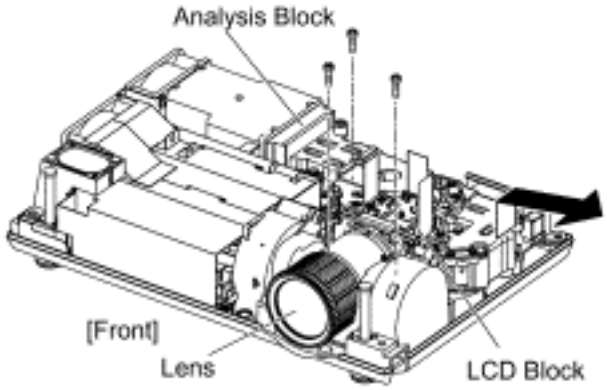
7.10 Removal of Analysis Block, LCD Block and Lens

1. Remove the lamp unit according to the section 7.9. "Removal of Lamp Unit".

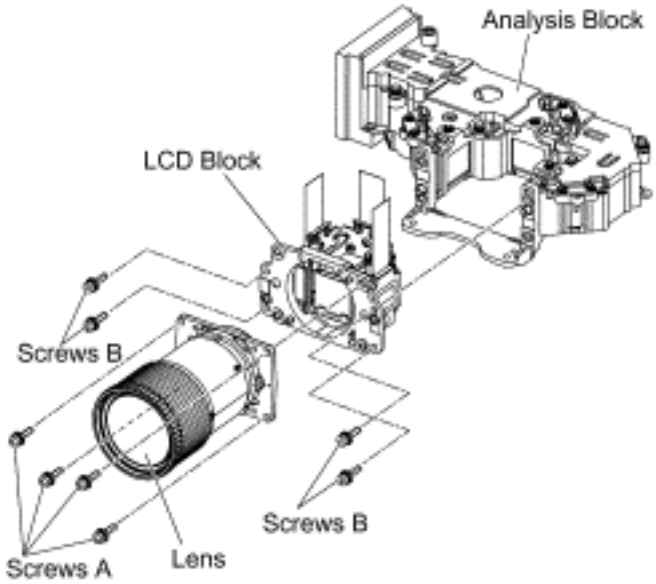
2. Remove the A-P.C.Board block according to the steps 1 through 5 in the section 7.3. "Removal of A-P.C.Board".

3. Unscrew the 3 screws.

4. Lift the LCD block/lens side, remove the entire block in the state of the inclined.

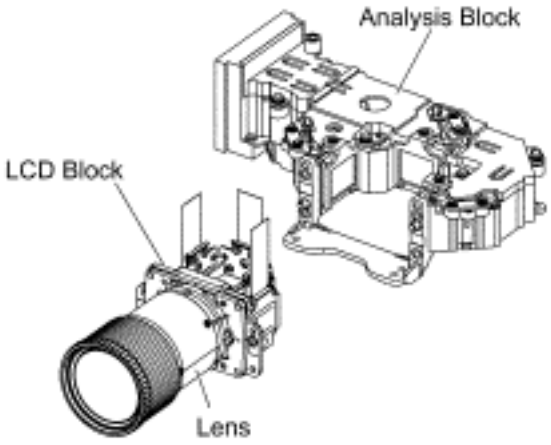


5. Unscrew the 4 screws A to separate the lens and the LCD block, unscrew the 4 screws B to separate the analysis block and the LCD block respectively.



7.11 Replacement of LCD Panel

1. Remove the LCD block and lens according to the section 7.10. "Removal of Analysis Block, LCD Block and Lens".

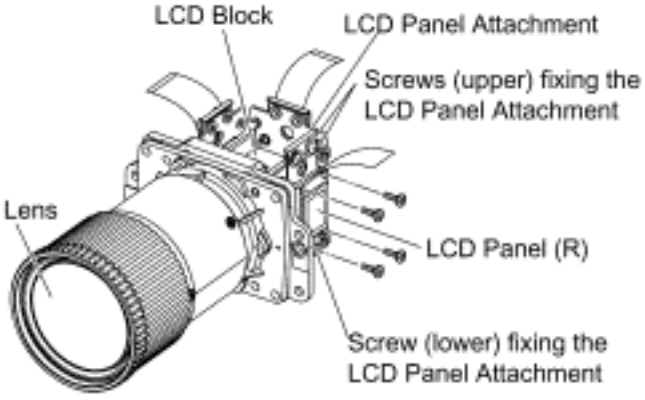


2. Unscrew the 4 screws and replace the LCD panel. (Remove the old LCD panel and install a new one.)

   Note:

   - Be careful not to touch the LCD panel surface.

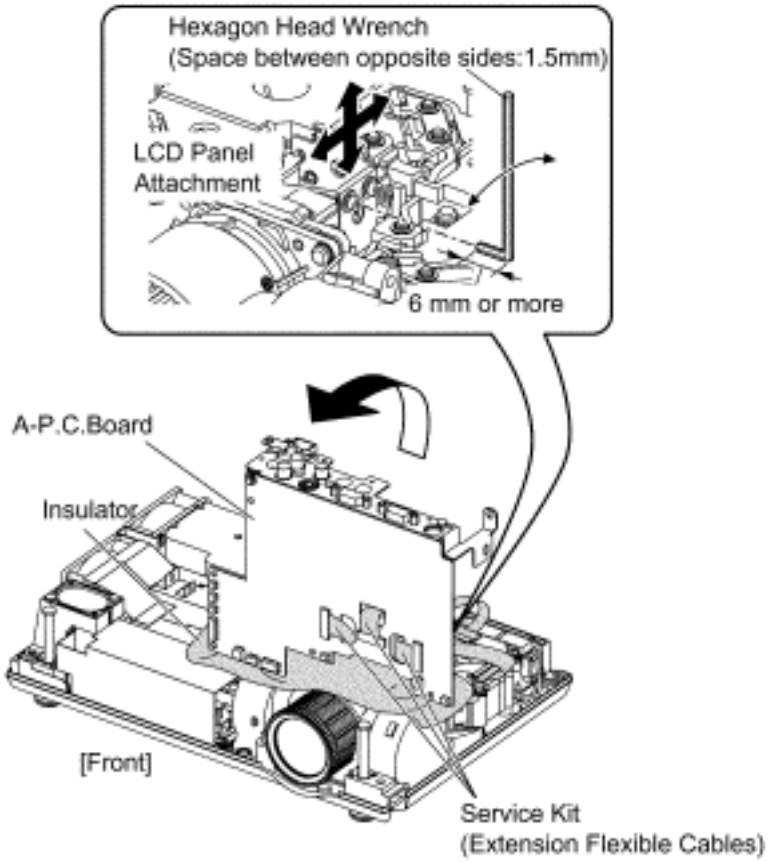
3. Use a hexagon head wrench, loosen the 3 screws fixing the LCD panel attachment and screw them temporarily just until the LCD panel can be shifted by your fingers.



4. Reassemble the projector in the reverse order of disassembling, but leave the upper case and the screws fixing the A-P.C.Board block as they are removed.

5. Adjust the convergence according to the section 8.4. "Convergence Adjustment".

6. After the adjustment, screw the 2 screws (upper) fixing the LCD panel attachment temporarily with care not to vary the adjusting result.



Notes:

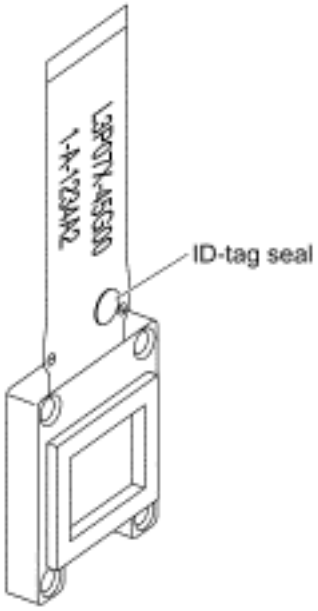
- Work carefully not to damage the flexible cable.
- Prepare a hexagon head wrench processed short (6 mm or less).

7. Remove the analysis block, LCD block and lens again.
8. Tighten the 3 screws fixing the LCD panel attachment.
9. Reassemble the projector as it was.

7.12 LCD Panel Discrimination

ID-tag seal color	LCD panel
Red	LCD panel (R)
Blue	LCD panel (B)
(No seal)	LCD panel (G)

- Since the ID-tag seal is pasted to the FPC of LCD Panl, (R), (G) or (B) can be easily identified by the color of the seal.
- Finally, identify the panel color by the part number printed on the FPC.



7.13 LCD Panel Combination

- Part number is printed on the FPC of LCD Panel.
- When replacing LCD Panel, use a component which has the same part number as the original.

Model number	LCD panel	Part No.
	R	L5BDAXQ00131 (L3P07X-45G00)
PT-LC76U/E	G	L5BDAXQ00132 (L3P07X-45G00)
	B	L5BDAXQ00133 (L3P07X-45G00)
	R	L5BDAXN00058 (L3P07S-41G00)
PT-LC56U/E	G	L5BDAXN00059 (L3P07S-41G00)
	B	L5BDAXN00060 (L3P07S-41G00)

7.14 Replacement of Polarizer

1. Remove the A-P.C.Board block according to the steps 1 through 5 in the section 7.3. "Removal of A-P.C.Board".

2. Mark positions of the polarizer (R/G/B).

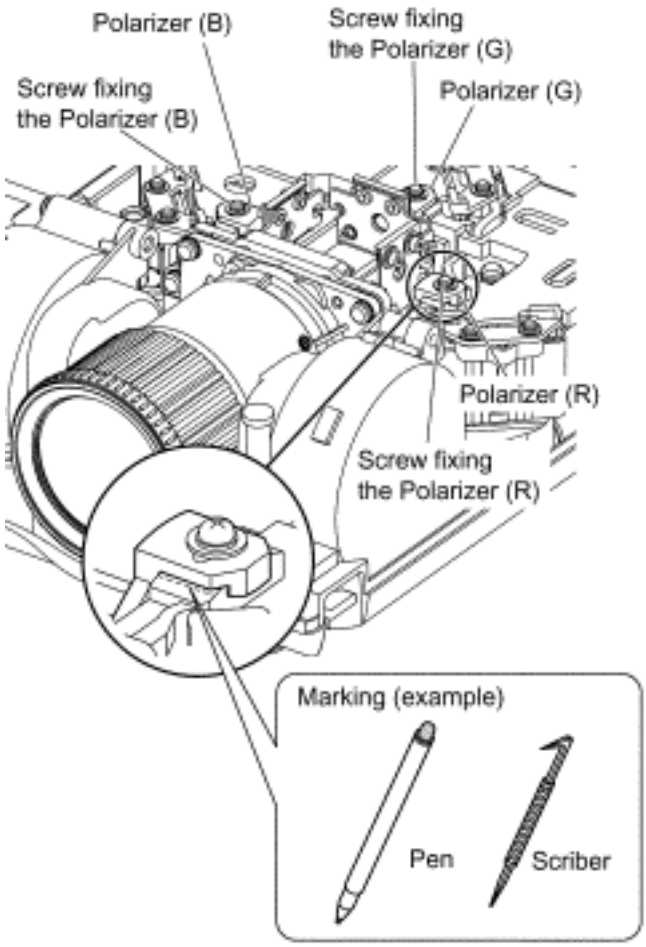
   Note:

   - Mark accurately as possible because the marks will be used for resetting the polarizer position.

3. Unscrew each screw and remove the polarizer.

4. Attach a new polarizer and align it with the mark.

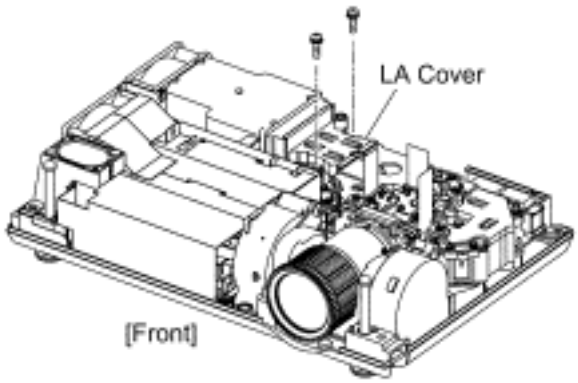
5. Tighten the screw with care not to move its position.



7.15 Replacement of PBS Array (Analysis Block)

1. Remove the A-P.C.Board block according to the steps 1 through 5 in the section 7.3. "Removal of A-P.C.Board".

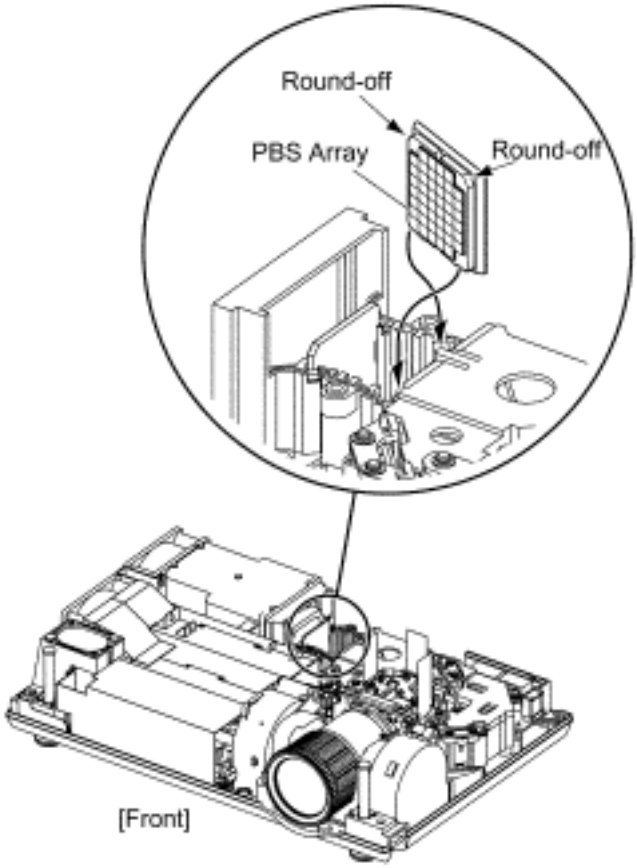
2. Unscrew the 2 screws and remove the LA cover.



3. Take the PBS array out upward with its edges and replace it.

   Note:

   - When attaching a new PBS array, be careful not to mistake the direction.


Round-off
PBS Array
Round-off
[Front]

8 Measurement and Adjustments

8.1 Adjustment Procedure Flowchart

8.2 Cautions for Adjustment

8.3 Setting Before Adjustment

8.4 Convergence Adjustment

8.4.1 Basic Adjustment Procedure

8.4.2 Adjustment after Every LCD Panel or LCD Block Replacement

8.4.3 Adjustment after LCD Panel (G) Replacement

8.4.4 Adjustment after LCD Panel (R) Replacement

8.4.5 Adjustment after LCD Panel (B) Replacement

8.5 Lighting Area Adjustment

8.5.1 Tools to be used

8.5.2 Preparation

8.5.3 Adjustment Procedure

8.6 Software for Adjustment

8.6.1 Outline

8.6.2 Operating Procedure

8.6.3 Port Name and Projector Selection Menu

8.6.4 Data Send/Receive Menu

8.6.5 Adjustment Menu

8.7 Flicker Adjustment

8.7.1 Adjustment Menu

8.7.2 Explanation of Buttons

8.7.3 Equipment to be used

8.7.4 Adjustment Procedure

8.8 Input Level Adjustment

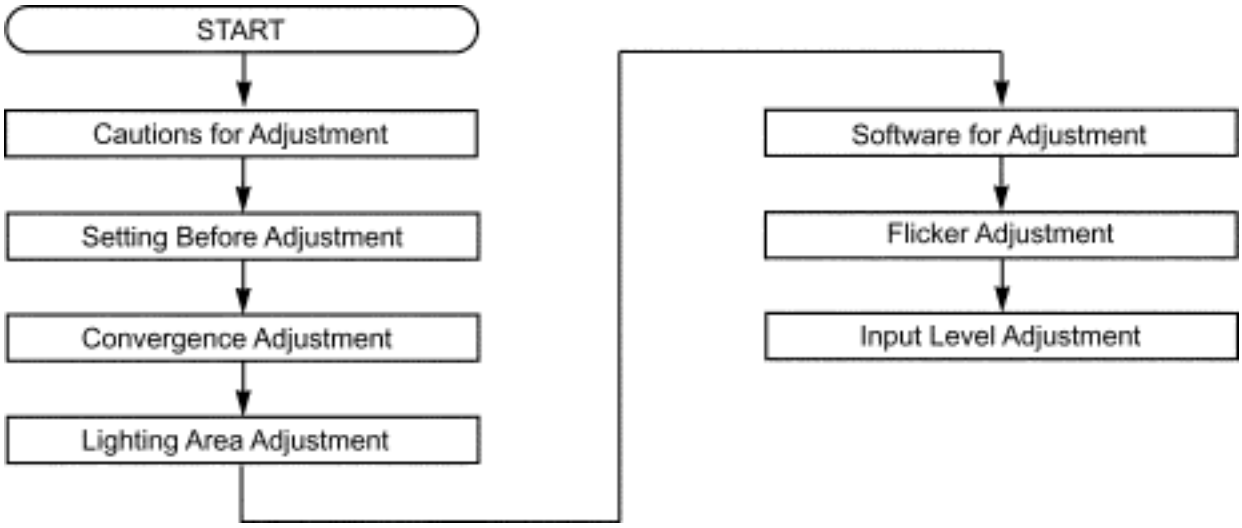
8.8.1 Adjustment Menu

8.8.2 Explanation of Buttons

8.8.3 Equipment to be used

8.8.4 Adjustment Procedure

8.1 Adjustment Procedure Flowchart

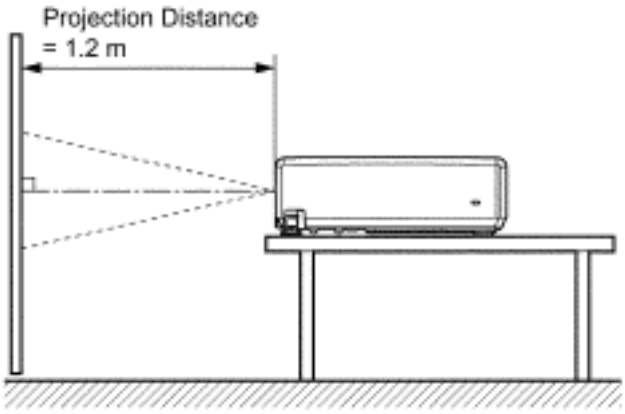


8.2 Cautions for Adjustment

- Never turn off the MAIN POWER switch until every fan completely stops.
- To maintain and ensure safety, always use the designated components for replacement parts.
- If removing any clamps, lead wires or connectors, always place them back in their proper locations.
- Be careful not to damage the lead wires or components when using a soldering iron or similar tool.

8.3 Setting Before Adjustment

- Set up the projector to obtain the projection distance below.
- Turn the zoom ring of the projector to obtain the largest size of the picture.



8.4 Convergence Adjustment

8.4.1 Basic Adjustment Procedure

8.4.2 Adjustment after Every LCD Panel or LCD Block Replacement

8.4.3 Adjustment after LCD Panel (G) Replacement

8.4.4 Adjustment after LCD Panel (R) Replacement

8.4.5 Adjustment after LCD Panel (B) Replacement

8.4.1 Basic Adjustment Procedure

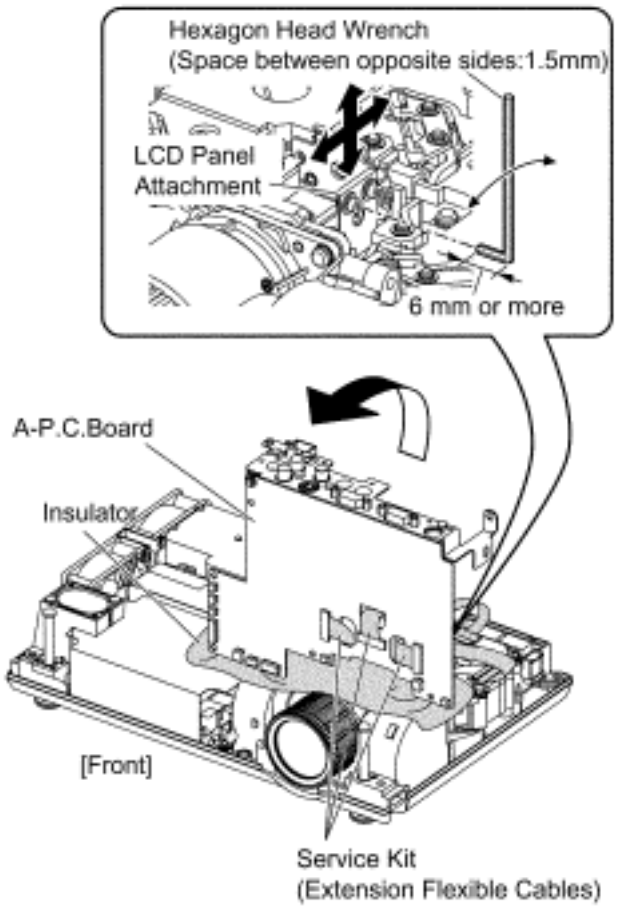
1. According to the section 7.11. "Replacement of LCD Panel", loosen the 3 screws fixing the LCD panel attachment and screw them temporarily just until the LCD panel can be shifted by your fingers.

2. Reassemble the projector in the reverse order of disassembling, but leave the upper case and the screws fixing the A-P.C.Board block as they are removed.

3. Connect the service kit (extension cables).

    - Each flexible cable of LCD Panels (R/G/B) - Connectors (A1/A2/A3) on A-P.C.Board

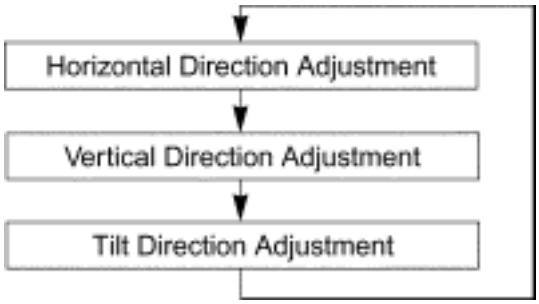
4. Covering with an insulator (cloth or the like) to prevent a short circuit, set the A-P.C.Board block on the main unit.



Note:

- Handle with care not to apply external force to connecting parts which connect the main unit and A-P.C.Board.

5. Repeat the following steps until the red, green and blue crosshatch patterns merge into a white pattern.



Note:

Because the projected picture may move opposite in direction to the move of the LCD panel, adjust the convergence observing the real projected picture carefully.

6. Reassemble the projector according to the steps 6 through 9 in the section 7.11. "Replacement of LCD Panel".

8.4.2 Adjustment after Every LCD Panel or LCD Block Replacement

1. Display the green crosshatch pattern and adjust the lens focus.
2. Adjust the LCD panel (G) position to place the center position of the crosshatch pattern to the center on the screen.
3. Correct the tilt of the green crosshatch pattern.
4. Display the white crosshatch pattern.
5. Adjust the LCD panels (R) and (B) to merge the red and blue patterns with the green.

8.4.3 Adjustment after LCD Panel (G) Replacement

1. Display the white crosshatch pattern and adjust the lens focus.
2. Adjust the LCD panel (G) to merge the green pattern with the red and blue ones.

8.4.4 Adjustment after LCD Panel (R) Replacement

1. Display the white crosshatch pattern and adjust the lens focus.
2. Adjust the LCD panel (R) to merge the green pattern with the green and blue ones.

8.4.5 Adjustment after LCD Panel (B) Replacement

1. Display the white crosshatch pattern and adjust the lens focus.
2. Adjust the LCD panel (B) to merge the green pattern with the green and red ones.

8.5 Lighting Area Adjustment

8.5.1 Tools to be used

8.5.2 Preparation

8.5.3 Adjustment Procedure

8.5.1 Tools to be used

Service Kit (Part No. TZSH07012): This kit is composed of 3 extension flexible cables.

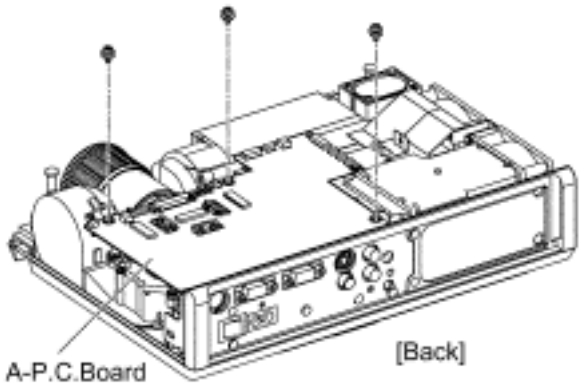
Note:

- Consult your dealer or Authorized Service Center for the service kit.

8.5.2 Preparation

1. Remove the connector panel according to the steps 1 through 3 in the section 7.3. "Removal of A-P.C.Board".

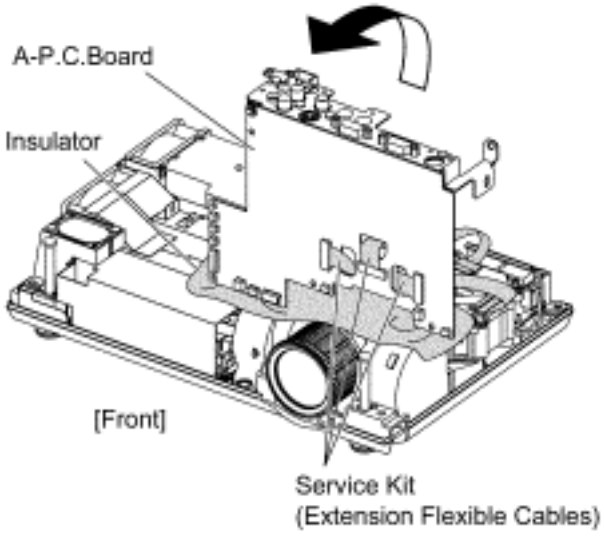
2. Unscrew the 3 screws.



3. Connect the service kit (extension cables).

    - Each flexible cable of LCD Panels (R/G/B) - Connectors (A1/A2/A3) on A-P.C.Board

4. Covering with an insulator (cloth or the like) to prevent a short circuit, set the A-P.C.Board block on the main unit.



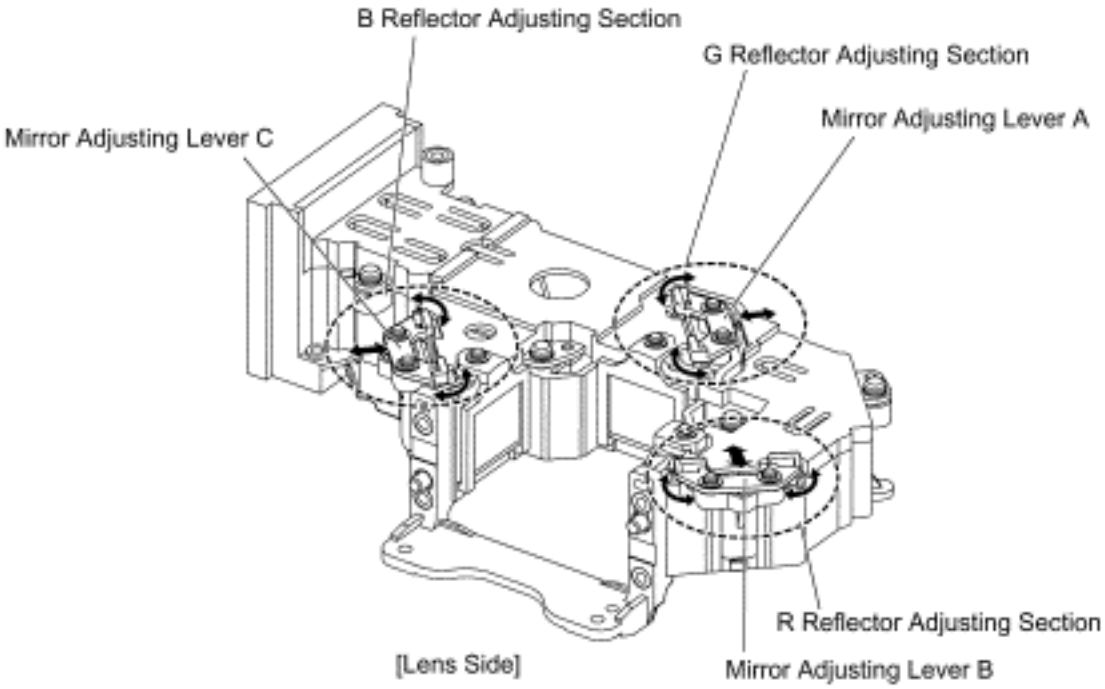
Note:

- Handle with care not to apply external force to connecting parts which connect the main unit and A-P.C.Board.

8.5.3 Adjustment Procedure

8.5.3.1 Outline

- Shifting the mirror adjusting lever horizontally, adjust color unevenness on the screen upper/lower sides.
- Twisting the mirror adjusting lever, adjust color unevenness on the screen right/left sides.



8.5.3.2 G Reflector Adjustment

1. Turn on the power and display 100 % white pattern on the screen.
2. Loosen the 2 screws fixing the mirror adjusting lever A just until the lever can be shifted.
3. Adjust the mirror adjusting lever A positions to minimize color unevenness on the screen by shifting the lever in arrow directions.
4. Tighten the 2 screws.

8.5.3.3 R Reflector Adjustment

1. Turn on the power and display 100 % white pattern on the screen.

2. Loosen the 2 screws fixing the mirror adjusting lever B just until the lever can be shifted.

3. Adjust the mirror adjusting lever B positions to minimize color unevenness on the screen by shifting the lever in arrow directions.

4. Tighten the 2 screws.

8.5.3.4 B Reflector Adjustment

1. Turn on the power and display 100 % white pattern on the screen.

2. Loosen the 2 screws fixing the mirror adjusting lever C just until the lever can be shifted.

3. Adjust the mirror adjusting lever C positions to minimize color unevenness on the screen by shifting the lever in arrow directions.

4. Tighten the 2 screws.

8.6 Software for Adjustment

8.6.1 Outline

8.6.2 Operating Procedure

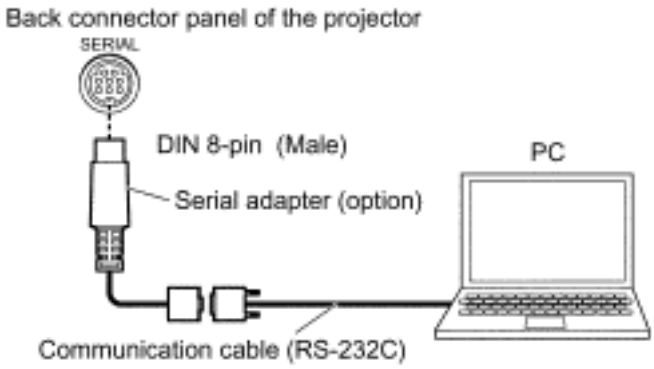
8.6.3 Port Name and Projector Selection Menu

8.6.4 Data Send/Receive Menu

8.6.5 Adjustment Menu

8.6.1 Outline

- This projector needs computer-aided adjustments.
- After the software adjustments, this projector must be turned off and on again to memorize the settings.
- Connect the cable between the projector and a PC as shown below.
- Updating the software will change the version number.



8.6.2 Operating Procedure

1. Run software program by the keyboard entry.

   Note:

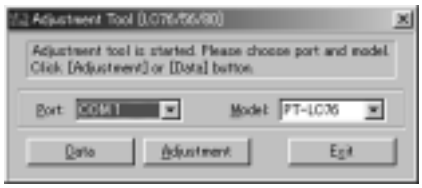
   - Use the software program as below.

     Adjustment Tool [LC76/56/80]

2. The first menu is Port and Model selection menu.

3. Adjust the projector by selecting the necessary item from the menu in each stage.

8.6.3 Port Name and Projector Selection Menu



Select the applying item with the list box and click "Data" or "Adjustment".

8.6.3.1 Explanation of Buttons

Port:

Port name of PC which connects with the projector

Model:

Model number which will be adjusted

Data:

Displays the data send/receive menu.

Adjustment:

Displays the adjustment menu.

Exit:

Exits this application.

8.6.4 Data Send/Receive Menu



8.6.4.1 Explanation of Buttons

Micom Data Transmission:

Reads the microcomputer data from the file and transmits it to the projector.

Micom Data Reception:

Receives the microcomputer data from the projector and writes it in the file.

Gamma Data Transmission:

Reads the gamma data from the file and transmits it to the projector.

Gamma Data Reception:

Receives the gamma data from the projector and writes it in the file.

Uniformity Data Transmission:

Reads the color unevenness correction data from the file and transmits it to the projector.

Uniformity Data Reception:

Receives the color unevenness correction data from the projector and writes it in the file.

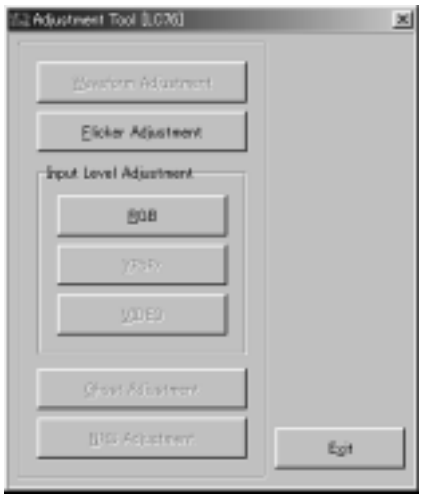
Exit:

Exits this application.

8.6.4.2 Receiving and transmitting of the data

Click a target button and specify a file name.

8.6.5 Adjustment Menu



8.6.5.1 Explanation of Buttons

Flicker Adjustment:

Displays the flicker adjustment menu.

Input Level Adjustment RGB:

Displays the RGB input level adjustment menu.

Exit:

Exits this application.

8.7 Flicker Adjustment

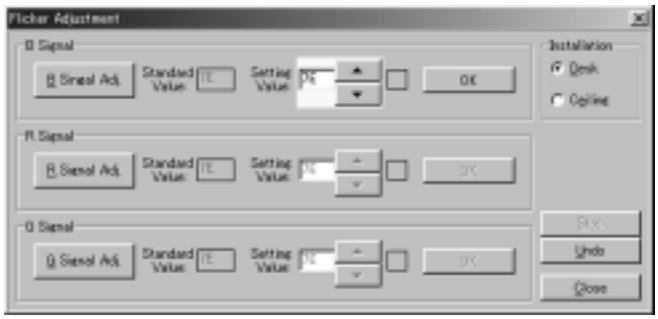
8.7.1 Adjustment Menu

8.7.2 Explanation of Buttons

8.7.3 Equipment to be used

8.7.4 Adjustment Procedure

8.7.1 Adjustment Menu



8.7.2 Explanation of Buttons

Desk:

Sets the installation mode to the desk setting and receive the current data.

Ceiling:

Sets the installation mode to the ceiling setting and receive the current data.

B Signal Adj.:

Sets the test signal mode to the B-signal and allows the "

▲", "

▼" and "OK" buttons of the B-signal to becomes active.

R Signal Adj.:

Sets the test signal mode to the R-signal and allows the "

▲", "

▼" and "OK" buttons of the R-signal to becomes active.

G Signal Adj.:

Sets the test signal mode to the G-signal and allows the "

▲", "

▼" and "OK" buttons of the G-signal to becomes active.

▲ or

▼

Changes the setting value and transmits its data. (The 8 and 2 keys on the keyboard have the same functions.) If releasing the mouse or key after pressing it continuously, the data is transmitted once. The variable setting value is enclosed ina box and using the TAB or SPACE key allows the move of the box.

OK:

Determines the setting value and stores its data in the EEPROM. (The ENTER key on the keyboard has the same function.) The item having two or more kinds of setting values is processed two or more items. Clicking this button or pressing ENTER keychanges the color of the text "OK" to cyan (light blue). If changing the setting value using the "

▲" or "

▼" button or the 8or 2 key, its color returns to black.

Stop:

Discontinues the communication. (This button is usually set for its inactive mode.)

Undo:

Returns the setting value to its original state and transmits its data. The color of the text "OK" returns to black.

Close:

Closes this menu.

8.7.3 Equipment to be used

PC, Software for Adjustment

8.7.4 Adjustment Procedure

1. Display the flicker adjustment menu.
2. Set the installation mode to the desk setting.
3. Click "B Signal Adj." and the blue flicker adjustment pattern will be displayed.
4. Minimize the flicker while observing the projected pattern.
5. Click "R Signal Adj." and the red flicker adjustment pattern will be displayed.
6. Minimize the flicker while observing the projected pattern.
7. Click "G Signal Adj." and the green flicker adjustment pattern will be displayed.
8. Minimize the flicker while observing the projected pattern.
9. Change the installation mode to the ceiling setting and follow steps 3 to 8 inclusive.

8.8 Input Level Adjustment

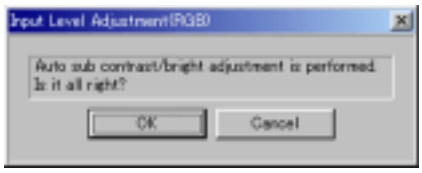
8.8.1 Adjustment Menu

8.8.2 Explanation of Buttons

8.8.3 Equipment to be used

8.8.4 Adjustment Procedure

8.8.1 Adjustment Menu



8.8.2 Explanation of Buttons

OK:

Executes automatic sub contrast and sub brightness adjustments, then closes this dialog.

Cancel:

Cancels this menu.

8.8.3 Equipment to be used

PC, RGB Signal Generator, Software for Adjustment

8.8.4 Adjustment Procedure

1. Display the RGB input level adjustment menu.
2. Input a window pattern signal to RGB1 IN connector.

   Note:

   - Use approx. 15 % window pattern as follows.

     Black background (screen width) : White window width = 2 : 1

     Black background (screen height) : White window height = 3 : 1

   - PT-LC76* must use the window pattern of XGA (1 024 ×768).
   - PT-LC56* must use the window pattern of S-VGA (800 ×600).
3. Click the OK button.

9 Troubleshooting

The letters in the left of the inspection items indicate the P.C.Boards or Modules related to their respective descriptions.

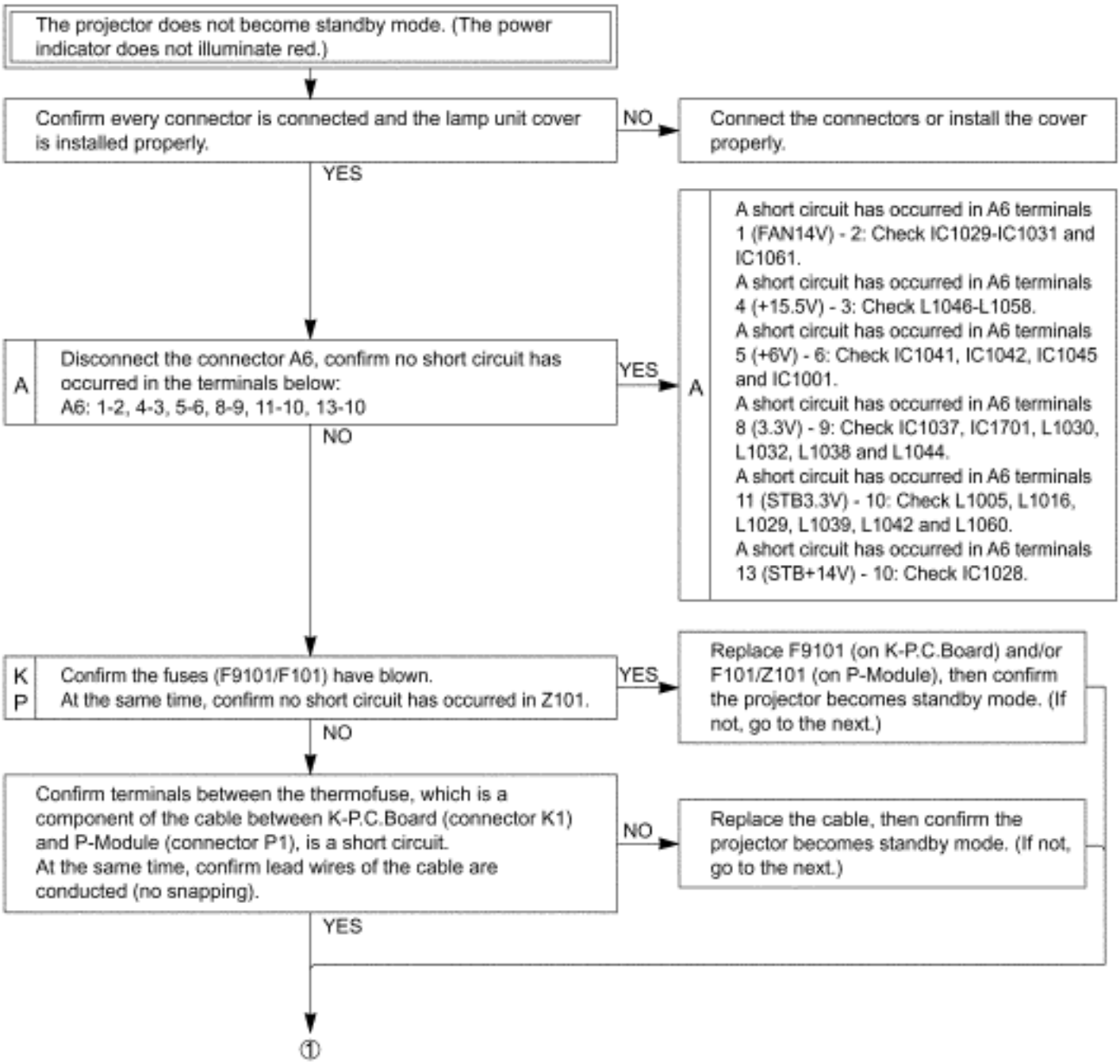
Note: A

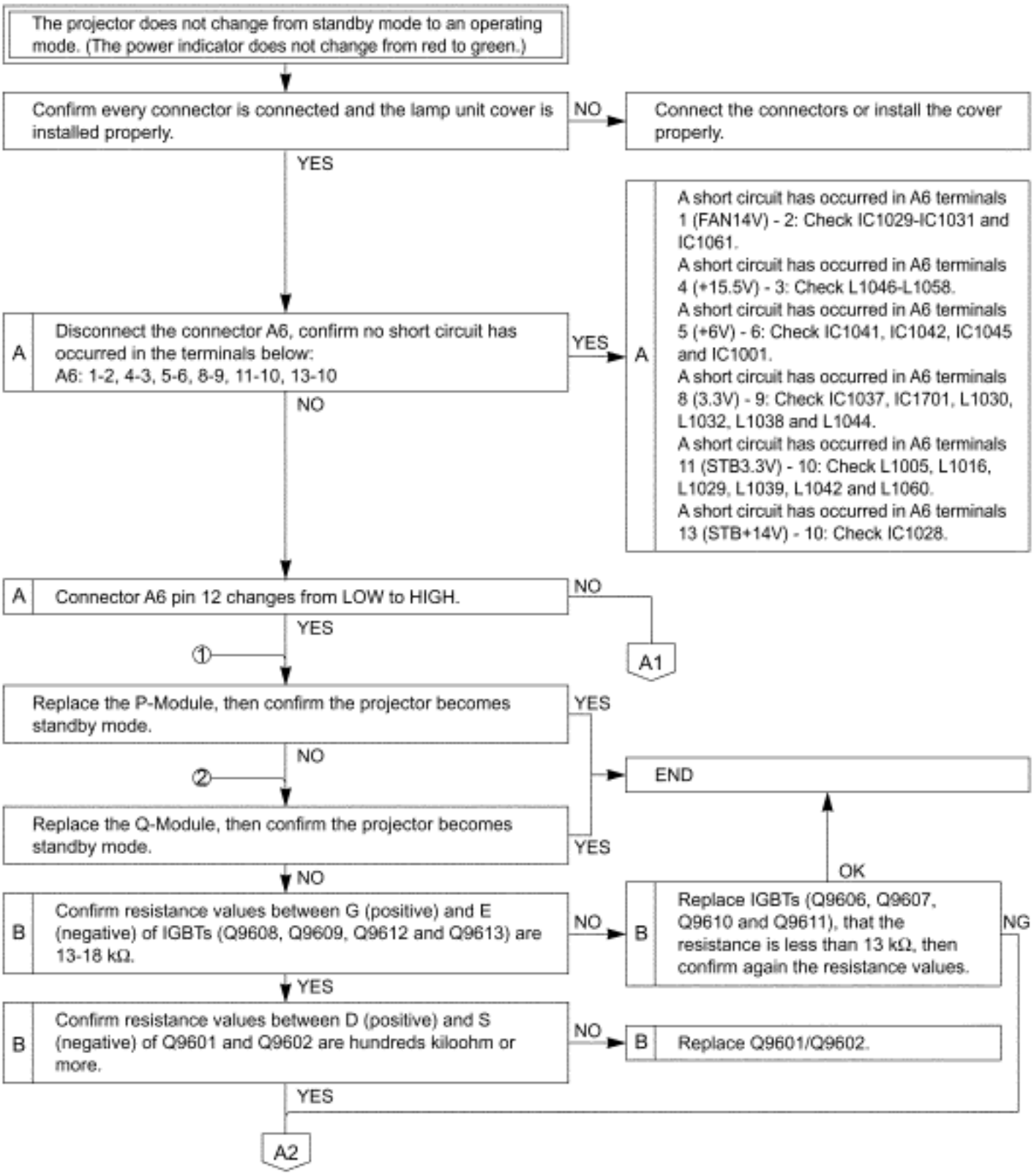
The letter of the alphabet indicates the P.C.Board or Module name.

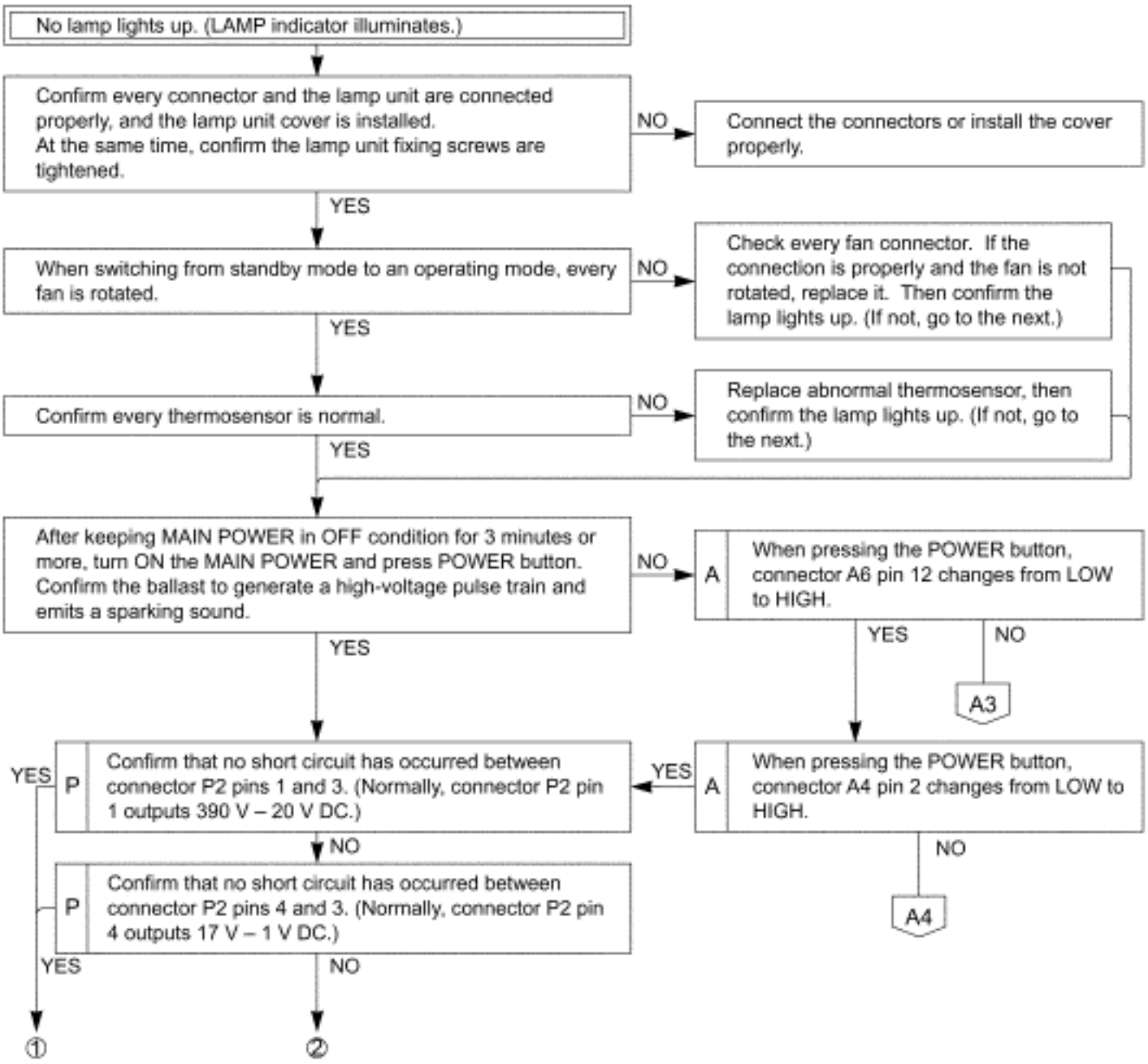
(Example) A: A-P.C.Board, B: B-Module

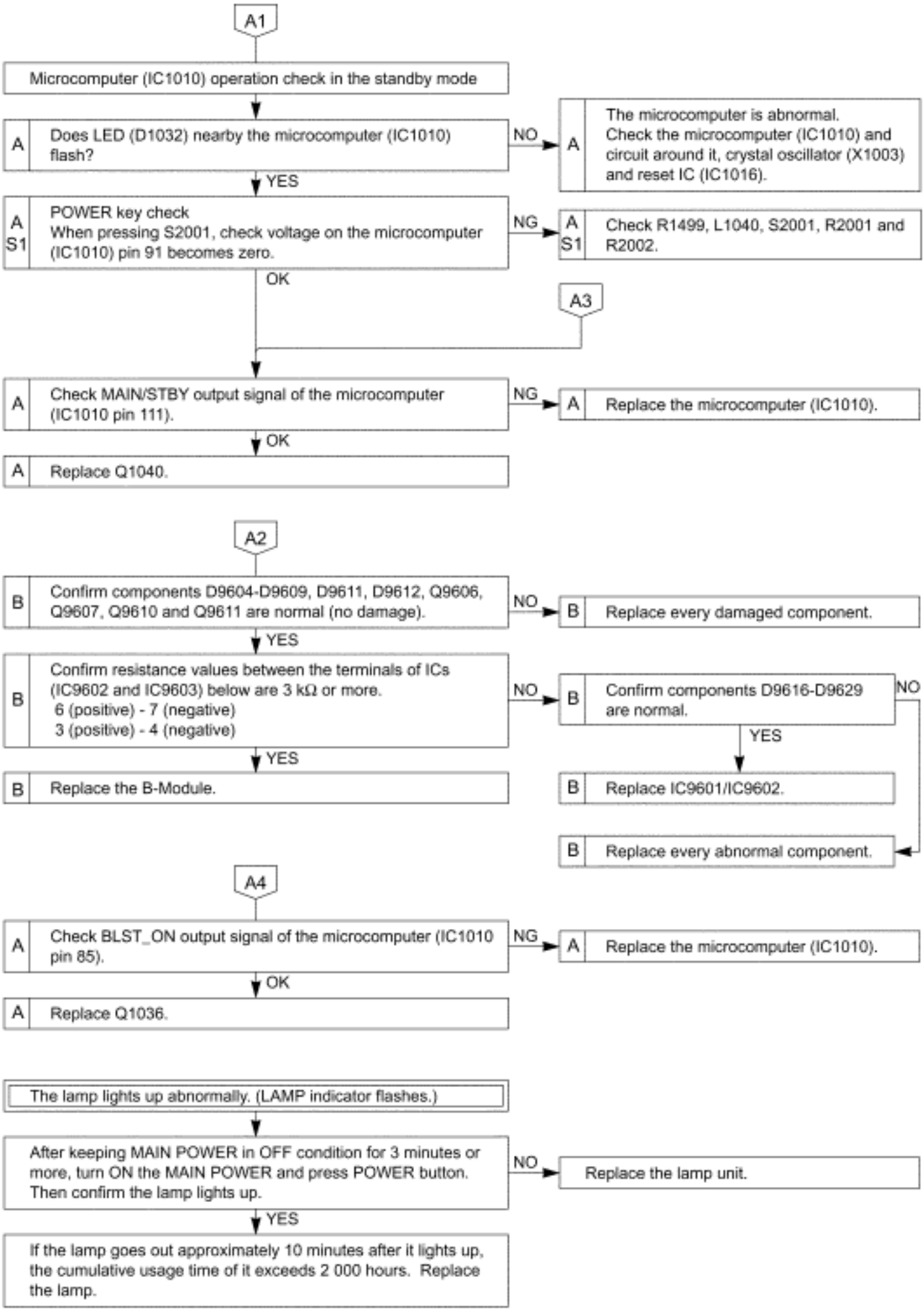
If replacing A-P.C.Board (assembly), read the ROM data from the old P.C.Board and write it in the new one according to the section 8.6. "Software for Adjustment". At this time, if the readout from the old P.C.Board does not succeed, remove IC1011 and IC1017 from the old P.C.Board and install them on the new one.

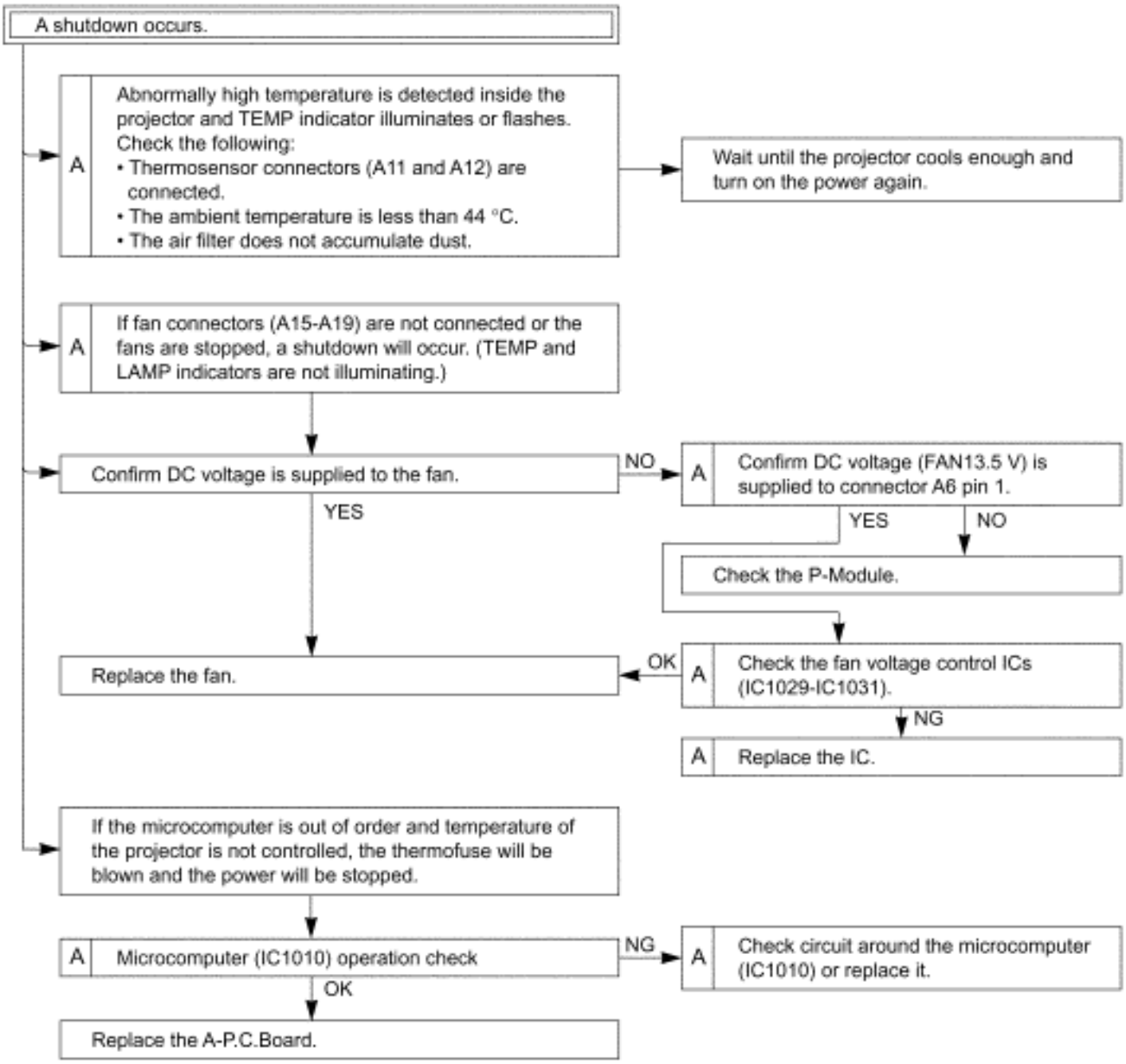
If replacing A-P.C.Board (assembly), adjust the Input Level according to the chapter 8.8. "Input Level Adjustments".

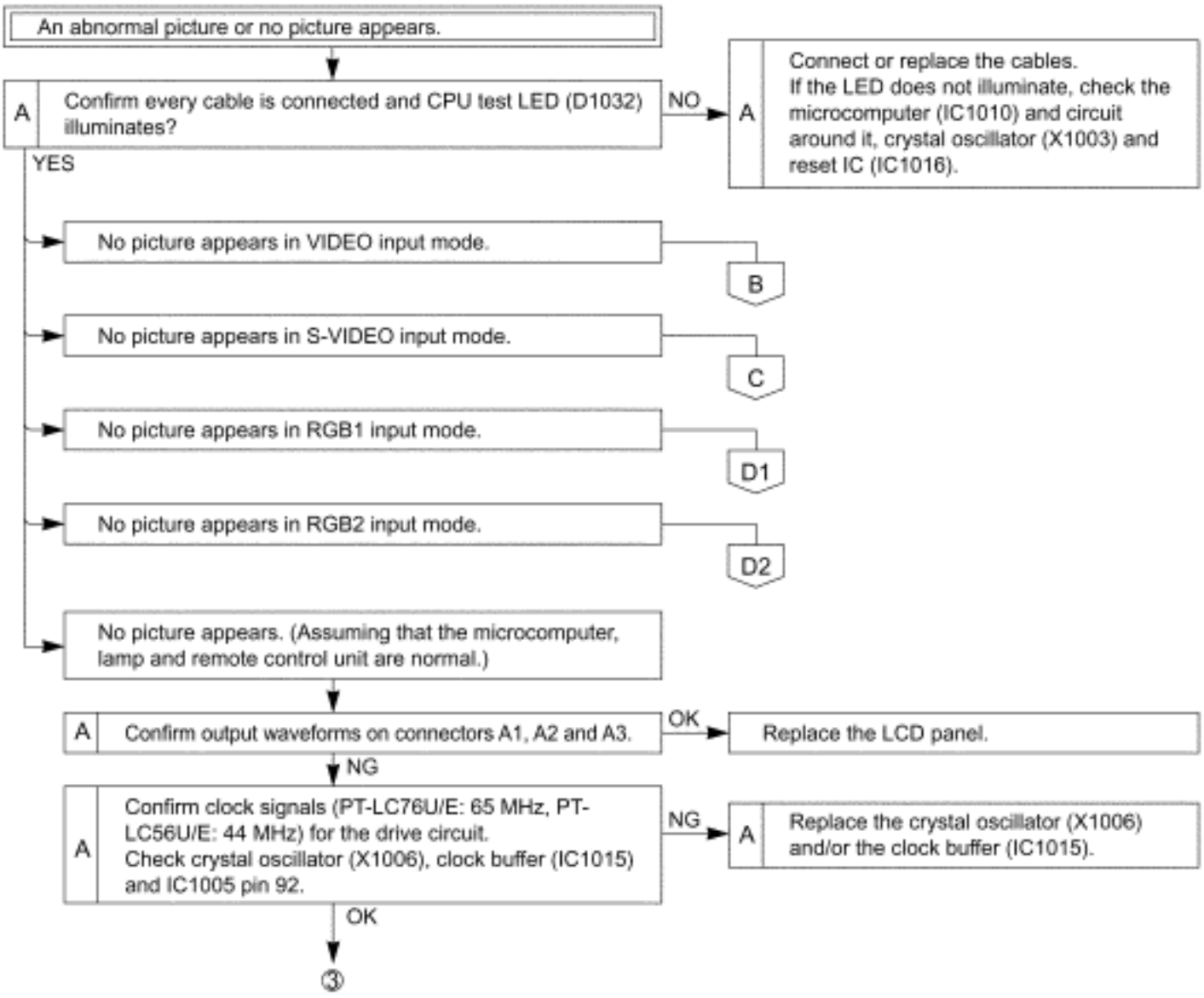


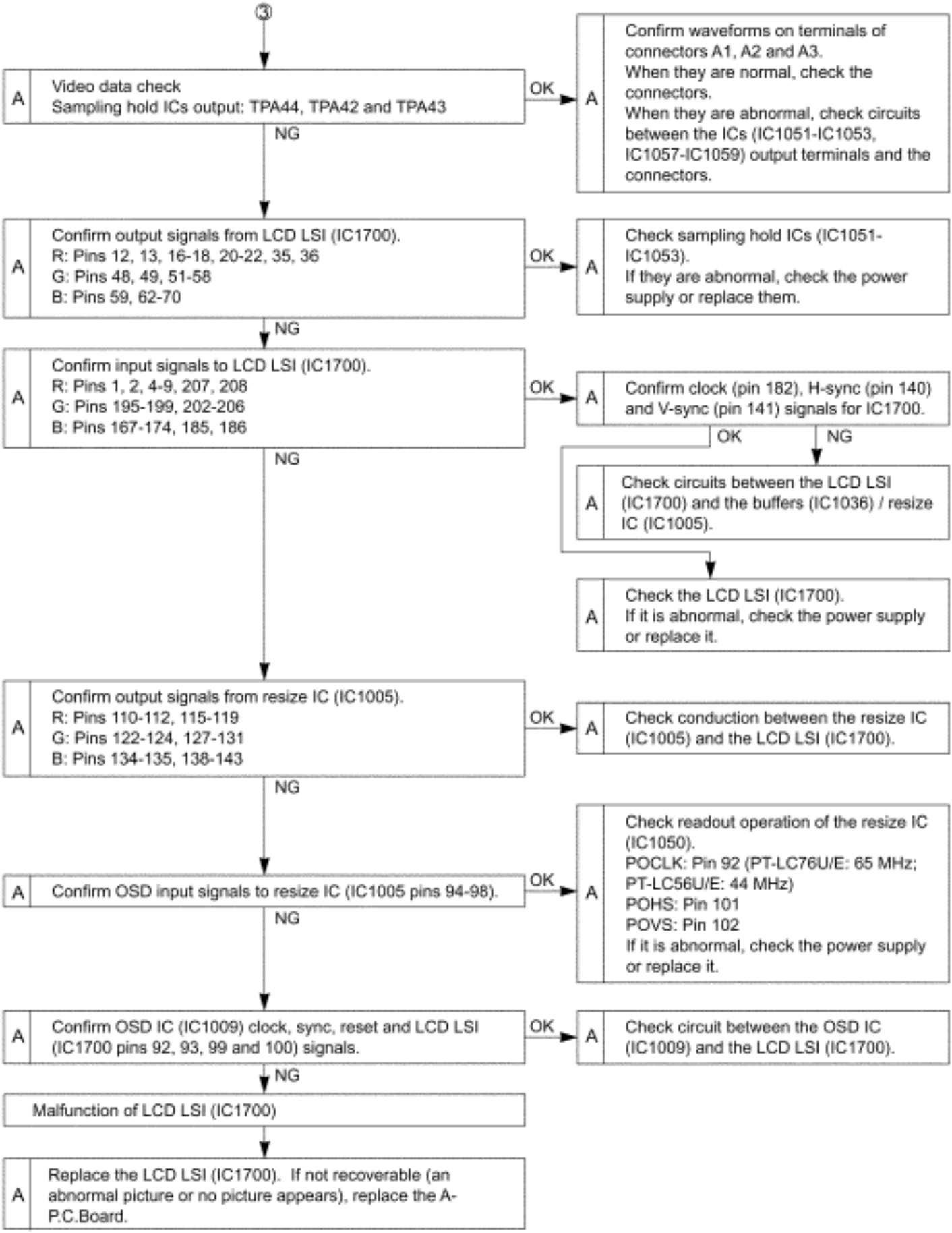

The projector does not change from standby mode to an operating mode. (The power indicator does not change from red to green.)
Confirm every connector is connected and the lamp unit cover is installed properly.
NO
Connect the connectors or install the cover properly.
YES
A
Disconnect the connector A6, confirm no short circuit has occurred in the terminals below:
A6: 1-2, 4-3, 5-6, 8-9, 11-10, 13-10
YES
A
A short circuit has occurred in A6 terminals 1 (FAN14V) - 2: Check IC1029-IC1031 and IC1061.
A short circuit has occurred in A6 terminals 4 (+15.5V) - 3: Check L1046-L1058.
A short circuit has occurred in A6 terminals 5 (+6V) - 6: Check IC1041, IC1042, IC1045 and IC1001.
A short circuit has occurred in A6 terminals 8 (3.3V) - 9: Check IC1037, IC1701, L1030, L1032, L1038 and L1044.
A short circuit has occurred in A6 terminals 11 (STB3.3V) - 10: Check L1005, L1016, L1029, L1039, L1042 and L1060.
A short circuit has occurred in A6 terminals 13 (STB+14V) - 10: Check IC1028.
NO
A
Connector A6 pin 12 changes from LOW to HIGH.
NO
YES
A1
①
YES
Replace the P-Module, then confirm the projector becomes standby mode.
NO
②
END
Replace the Q-Module, then confirm the projector becomes standby mode.
YES
NO
OK
B
Confirm resistance values between G (positive) and E (negative) of IGBTs (Q9608, Q9609, Q9612 and Q9613) are 13-18 kΩ.
NO
B
Replace IGBTs (Q9606, Q9607, Q9610 and Q9611), that the resistance is less than 13 kΩ, then confirm again the resistance values.
NG
YES
B
Confirm resistance values between D (positive) and S (negative) of Q9601 and Q9602 are hundreds kiloohm or more.
NO
B
Replace Q9601/Q9602.
YES
A2

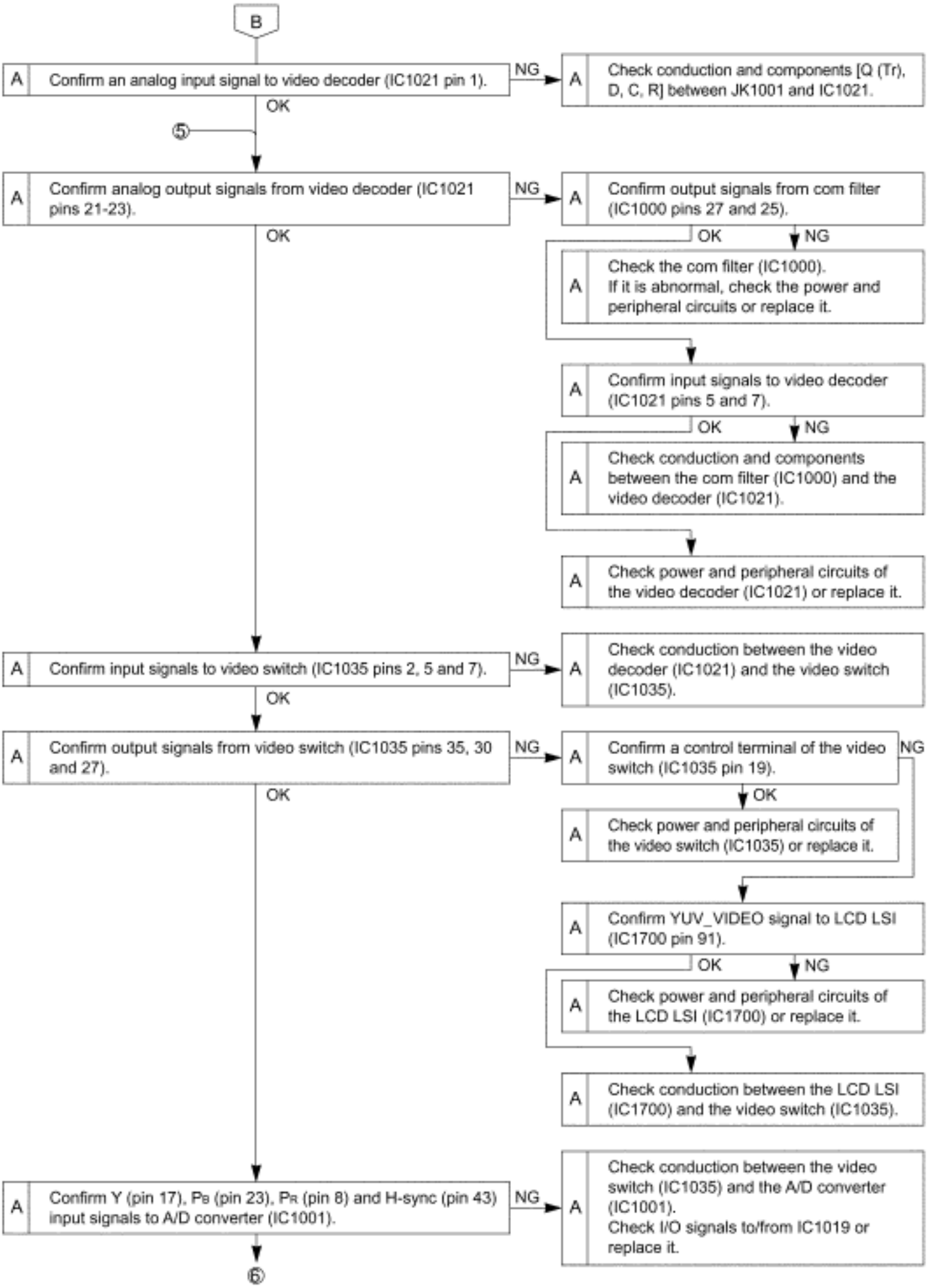

No lamp lights up. (LAMP indicator illuminates.)
Confirm every connector and the lamp unit are connected properly, and the lamp unit cover is installed.
At the same time, confirm the lamp unit fixing screws are tightened.
NO
Connect the connectors or install the cover properly.
YES
When switching from standby mode to an operating mode, every fan is rotated.
NO
Check every fan connector. If the connection is properly and the fan is not rotated, replace it. Then confirm the lamp lights up. (If not, go to the next.)
YES
Confirm every thermosensor is normal.
NO
Replace abnormal thermosensor, then confirm the lamp lights up. (If not, go to the next.)
YES
After keeping MAIN POWER in OFF condition for 3 minutes or more, turn ON the MAIN POWER and press POWER button. Confirm the ballast to generate a high-voltage pulse train and emits a sparking sound.
NO
A
When pressing the POWER button, connector A6 pin 12 changes from LOW to HIGH.
YES
NO
A3
YES
P
Confirm that no short circuit has occurred between connector P2 pins 1 and 3. (Normally, connector P2 pin 1 outputs 390 V – 20 V DC.)
YES
A
When pressing the POWER button, connector A4 pin 2 changes from LOW to HIGH.
NO
A4
NO
P
Confirm that no short circuit has occurred between connector P2 pins 4 and 3. (Normally, connector P2 pin 4 outputs 17 V – 1 V DC.)
YES
NO
①
②

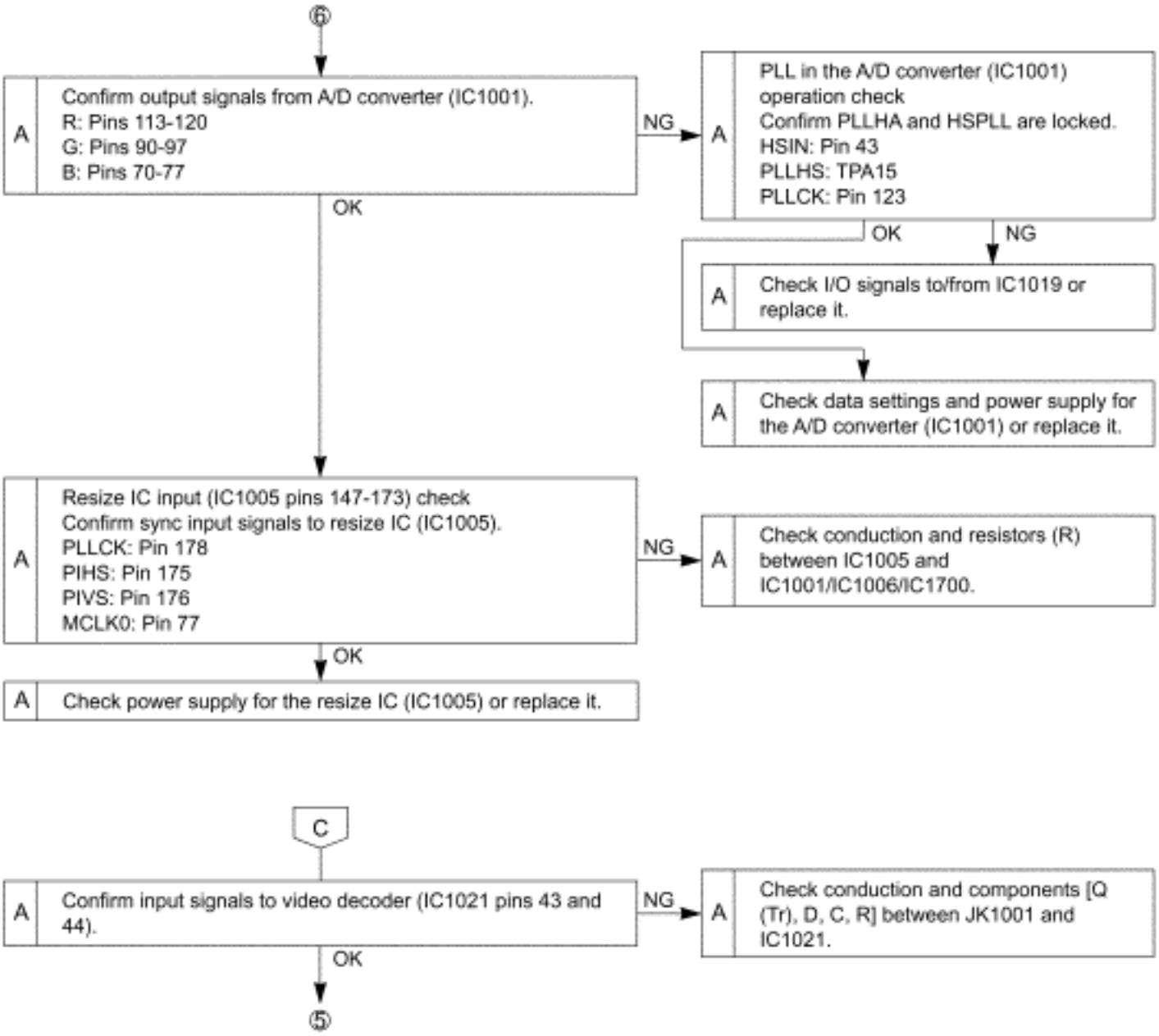

A1
Microcomputer (IC1010) operation check in the standby mode
A
Does LED (D1032) nearby the microcomputer (IC1010) flash?
NO
A
The microcomputer is abnormal. Check the microcomputer (IC1010) and circuit around it, crystal oscillator (X1003) and reset IC (IC1016).
YES
A S1
POWER key check When pressing S2001, check voltage on the microcomputer (IC1010) pin 91 becomes zero.
NG
A S1
Check R1499, L1040, S2001, R2001 and R2002.
OK
A3
A
Check MAIN/STBY output signal of the microcomputer (IC1010 pin 111).
NG
A
Replace the microcomputer (IC1010).
OK
A
Replace Q1040.
A2
B
Confirm components D9604-D9609, D9611, D9612, Q9606, Q9607, Q9610 and Q9611 are normal (no damage).
NO
B
Replace every damaged component.
YES
B
Confirm resistance values between the terminals of ICs (IC9602 and IC9603) below are 3 kΩ or more.
6 (positive) - 7 (negative)
3 (positive) - 4 (negative)
NO
B
Confirm components D9616-D9629 are normal.
NO
YES
YES
B
Replace the B-Module.
B
Replace IC9601/IC9602.
B
Replace every abnormal component.
A4
A
Check BLST_ON output signal of the microcomputer (IC1010 pin 85).
NG
A
Replace the microcomputer (IC1010).
OK
A
Replace Q1036.
The lamp lights up abnormally. (LAMP indicator flashes.)
After keeping MAIN POWER in OFF condition for 3 minutes or more, turn ON the MAIN POWER and press POWER button. Then confirm the lamp lights up.
NO
Replace the lamp unit.
YES
If the lamp goes out approximately 10 minutes after it lights up, the cumulative usage time of it exceeds 2 000 hours. Replace the lamp.

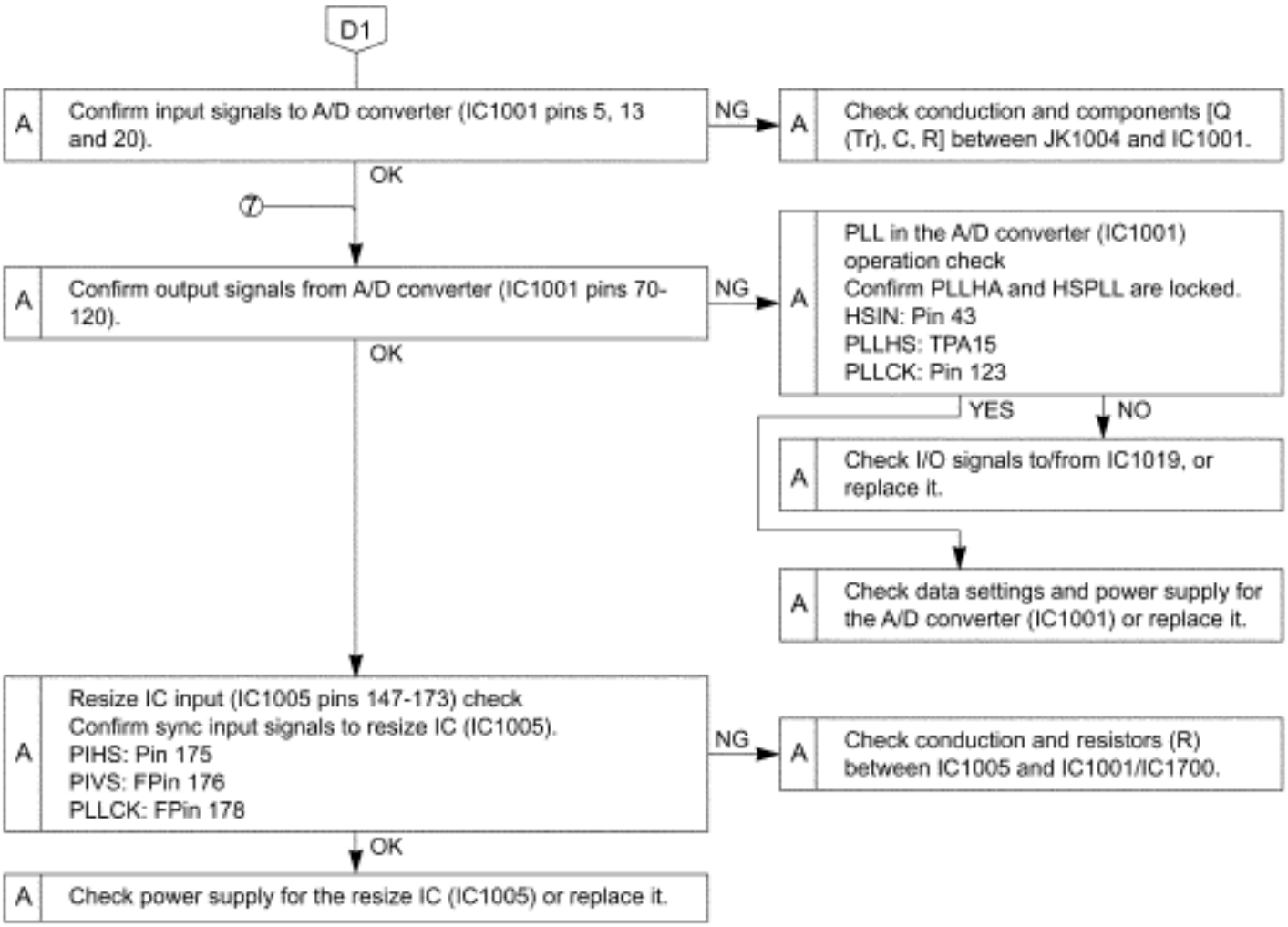

A shutdown occurs.
A
Abnormally high temperature is detected inside the projector and TEMP indicator illuminates or flashes. Check the following:
• Thermosensor connectors (A11 and A12) are connected.
• The ambient temperature is less than 44 °C.
• The air filter does not accumulate dust.
Wait until the projector cools enough and turn on the power again.
A
If fan connectors (A15-A19) are not connected or the fans are stopped, a shutdown will occur. (TEMP and LAMP indicators are not illuminating.)
Confirm DC voltage is supplied to the fan.
NO
A
Confirm DC voltage (FAN13.5 V) is supplied to connector A6 pin 1.
YES
NO
YES
Check the P-Module.
Replace the fan.
OK
A
Check the fan voltage control ICs (IC1029-IC1031).
NG
A
Replace the IC.
If the microcomputer is out of order and temperature of the projector is not controlled, the thermofuse will be blown and the power will be stopped.
A
Microcomputer (IC1010) operation check
NG
A
Check circuit around the microcomputer (IC1010) or replace it.
OK
Replace the A-P.C.Board.


An abnormal picture or no picture appears.
A
Confirm every cable is connected and CPU test LED (D1032) illuminates?
NO
A
Connect or replace the cables.
If the LED does not illuminate, check the microcomputer (IC1010) and circuit around it, crystal oscillator (X1003) and reset IC (IC1016).
YES
No picture appears in VIDEO input mode.
B
No picture appears in S-VIDEO input mode.
C
No picture appears in RGB1 input mode.
D1
No picture appears in RGB2 input mode.
D2
No picture appears. (Assuming that the microcomputer, lamp and remote control unit are normal.)
A
Confirm output waveforms on connectors A1, A2 and A3.
OK
Replace the LCD panel.
NG
A
Confirm clock signals (PT-LC76U/E: 65 MHz, PT-LC56U/E: 44 MHz) for the drive circuit.
Check crystal oscillator (X1006), clock buffer (IC1015) and IC1005 pin 92.
NG
A
Replace the crystal oscillator (X1006) and/or the clock buffer (IC1015).
OK
③


③
A
Video data check
Sampling hold ICs output: TPA44, TPA42 and TPA43
OK
A
Confirm waveforms on terminals of connectors A1, A2 and A3.
When they are normal, check the connectors.
When they are abnormal, check circuits between the ICs (IC1051-IC1053, IC1057-IC1059) output terminals and the connectors.
NG
A
Confirm output signals from LCD LSI (IC1700).
R: Pins 12, 13, 16-18, 20-22, 35, 36
G: Pins 48, 49, 51-58
B: Pins 59, 62-70
OK
A
Check sampling hold ICs (IC1051-IC1053).
If they are abnormal, check the power supply or replace them.
NG
A
Confirm input signals to LCD LSI (IC1700).
R: Pins 1, 2, 4-9, 207, 208
G: Pins 195-199, 202-206
B: Pins 167-174, 185, 186
OK
A
Confirm clock (pin 182), H-sync (pin 140) and V-sync (pin 141) signals for IC1700.
OK
NG
A
Check circuits between the LCD LSI (IC1700) and the buffers (IC1036) / resize IC (IC1005).
A
Check the LCD LSI (IC1700).
If it is abnormal, check the power supply or replace it.
NG
A
Confirm output signals from resize IC (IC1005).
R: Pins 110-112, 115-119
G: Pins 122-124, 127-131
B: Pins 134-135, 138-143
OK
A
Check conduction between the resize IC (IC1005) and the LCD LSI (IC1700).
NG
A
Confirm OSD input signals to resize IC (IC1005 pins 94-98).
OK
A
Check readout operation of the resize IC (IC1050).
POCLK: Pin 92 (PT-LC76U/E: 65 MHz; PT-LC56U/E: 44 MHz)
POHS: Pin 101
POVS: Pin 102
If it is abnormal, check the power supply or replace it.
NG
A
Confirm OSD IC (IC1009) clock, sync, reset and LCD LSI (IC1700 pins 92, 93, 99 and 100) signals.
OK
A
Check circuit between the OSD IC (IC1009) and the LCD LSI (IC1700).
NG
Malfunction of LCD LSI (IC1700)
A
Replace the LCD LSI (IC1700). If not recoverable (an abnormal picture or no picture appears), replace the A-P.C.Board.


B
A Confirm an analog input signal to video decoder (IC1021 pin 1).
NG
A Check conduction and components [Q (Tr), D, C, R] between JK1001 and IC1021.
OK
⑤
A Confirm analog output signals from video decoder (IC1021 pins 21-23).
NG
A Confirm output signals from com filter (IC1000 pins 27 and 25).
OK
NG
A Check the com filter (IC1000). If it is abnormal, check the power and peripheral circuits or replace it.
OK
A Confirm input signals to video decoder (IC1021 pins 5 and 7).
OK
NG
A Check conduction and components between the com filter (IC1000) and the video decoder (IC1021).
A Check power and peripheral circuits of the video decoder (IC1021) or replace it.
A Confirm input signals to video switch (IC1035 pins 2, 5 and 7).
NG
A Check conduction between the video decoder (IC1021) and the video switch (IC1035).
OK
A Confirm output signals from video switch (IC1035 pins 35, 30 and 27).
NG
A Confirm a control terminal of the video switch (IC1035 pin 19).
NG
OK
A Check power and peripheral circuits of the video switch (IC1035) or replace it.
OK
A Confirm YUV_VIDEO signal to LCD LSI (IC1700 pin 91).
OK
NG
A Check power and peripheral circuits of the LCD LSI (IC1700) or replace it.
A Check conduction between the LCD LSI (IC1700) and the video switch (IC1035).
A Confirm Y (pin 17), PB (pin 23), PR (pin 8) and H-sync (pin 43) input signals to A/D converter (IC1001).
NG
A Check conduction between the video switch (IC1035) and the A/D converter (IC1001). Check I/O signals to/from IC1019 or replace it.
⑥


⑥
A
Confirm output signals from A/D converter (IC1001).
R: Pins 113-120
G: Pins 90-97
B: Pins 70-77
NG
A
PLL in the A/D converter (IC1001) operation check
Confirm PLLHA and HSPLL are locked.
HSIN: Pin 43
PLLHS: TPA15
PLLCK: Pin 123
OK
NG
A
Check I/O signals to/from IC1019 or replace it.
A
Check data settings and power supply for the A/D converter (IC1001) or replace it.
OK
A
Resize IC input (IC1005 pins 147-173) check
Confirm sync input signals to resize IC (IC1005).
PLLCK: Pin 178
PIHS: Pin 175
PIVS: Pin 176
MCLK0: Pin 77
NG
A
Check conduction and resistors (R) between IC1005 and IC1001/IC1006/IC1700.
OK
A
Check power supply for the resize IC (IC1005) or replace it.
C
A
Confirm input signals to video decoder (IC1021 pins 43 and 44).
NG
A
Check conduction and components [Q (Tr), D, C, R] between JK1001 and IC1021.
OK
⑤


D1
A
Confirm input signals to A/D converter (IC1001 pins 5, 13 and 20).
NG
A
Check conduction and components [Q (Tr), C, R] between JK1004 and IC1001.
OK
⑦
A
Confirm output signals from A/D converter (IC1001 pins 70-120).
NG
A
PLL in the A/D converter (IC1001) operation check
Confirm PLLHA and HSPLL are locked.
HSIN: Pin 43
PLLHS: TPA15
PLLCK: Pin 123
OK
YES
NO
A
Check I/O signals to/from IC1019, or replace it.
A
Check data settings and power supply for the A/D converter (IC1001) or replace it.
A
Resize IC input (IC1005 pins 147-173) check
Confirm sync input signals to resize IC (IC1005).
PIHS: Pin 175
PIVS: FPin 176
PLLCK: FPin 178
NG
A
Check conduction and resistors (R) between IC1005 and IC1001/IC1700.
OK
A
Check power supply for the resize IC (IC1005) or replace it.


D2
Confirm that RGB2 is set in input mode.
NO
Set RGB2 SELECT into INPUT on OPTION1 menu.
YES
A
Confirm input signals to video switch (IC1035 pins 11, 13 and 16).
NG
A
Check components [Q (Tr), C, R] between JK1005 and IC1035.
OK
A
Confirm output signals from video switch (IC1035 pins 35, 30 and 27).
OK
⑦
NG
A
Confirm a control terminal of the video switch (IC1035 pin 19).
OK
A
Check power and peripheral circuits of the video switch (IC1035) or replace it.
NG
A
Confirm YUV_VIDEO signal from LCD LSI (IC1700 pin 91).
NG
A
Check the LCD LSI (IC1700).
OK
A
Check conduction between IC1700 and IC1035.
No signal is outputted from RGB2.
Confirm that RGB2 is set in output mode.
NO
Set RGB2 SELECT into OUTPUT on OPTION1 menu.
YES
A
Confirm input/output signals to/from operational amplifiers (IC1022-IC1024 pin 3 / pin 1).
NG
A
Check each control terminal of the operational amplifiers (IC1022-IC1024 pin 5).
OK
A
Check conduction and components (C, R) between JK1005 and the operational amplifiers (IC1022-IC1024).
Remote control malfunction
Check the remote control unit.
NG
Replace the remote control unit.
OK
A
When the remote control unit is operated, check the remote control signal is inputted to the microcomputer (IC1010) pins 24 and 25.
NO
S1
S2
Check the circuits around RM2001 and RM3001.
YES
Replace the A-P.C.Board.

10 Interconnection Block Diagram

10.1 Interconnection Block Diagram (1/2)

10.2 Interconnection Block Diagram (2/2)

10.1 Interconnection Block Diagram (1/2)



10.2 Interconnection Block Diagram (2/2)



11 Block Diagram

11.1 Power Supply

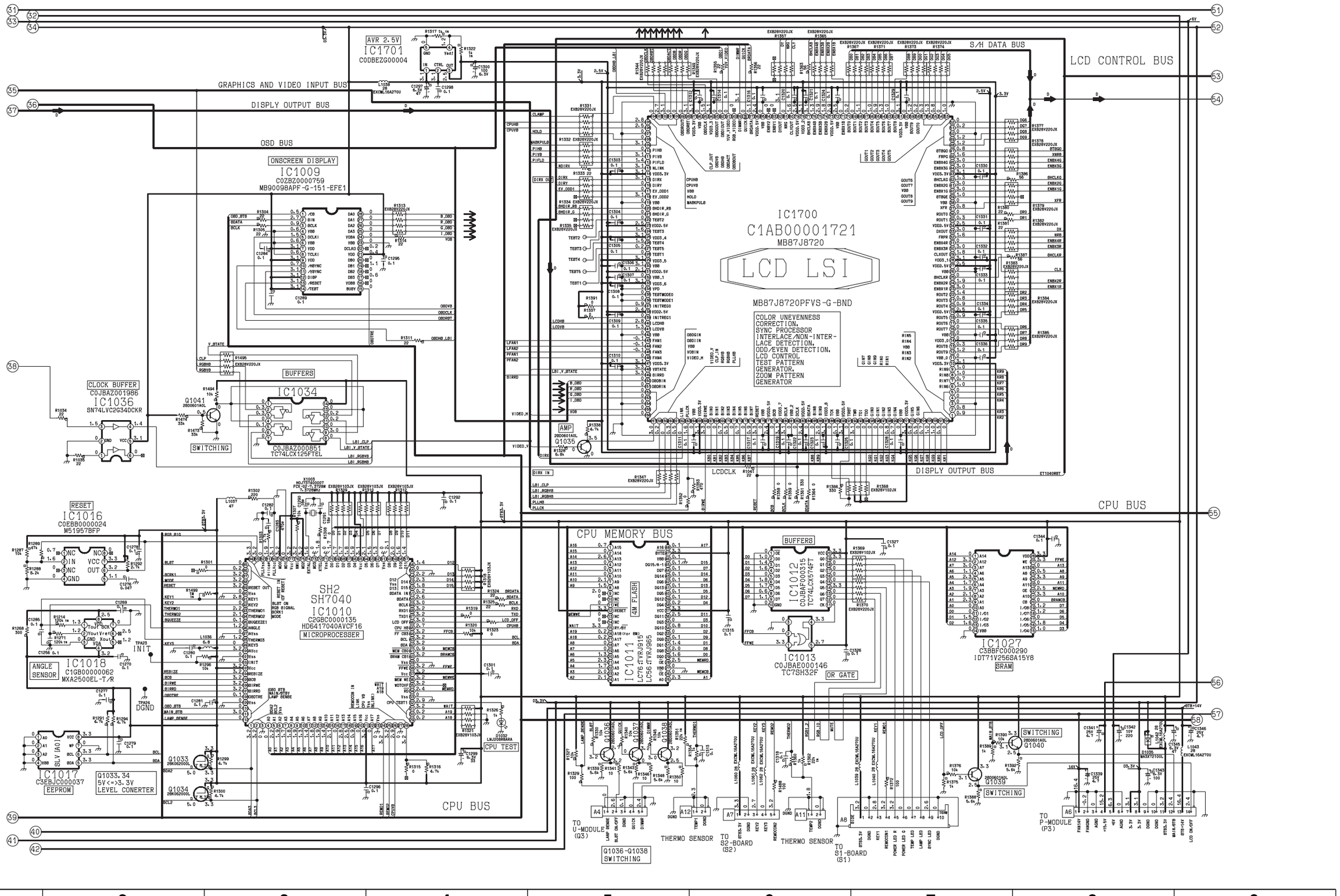
11.2 Signal Processing (1/2)

11.3 Signal Processing (2/2)

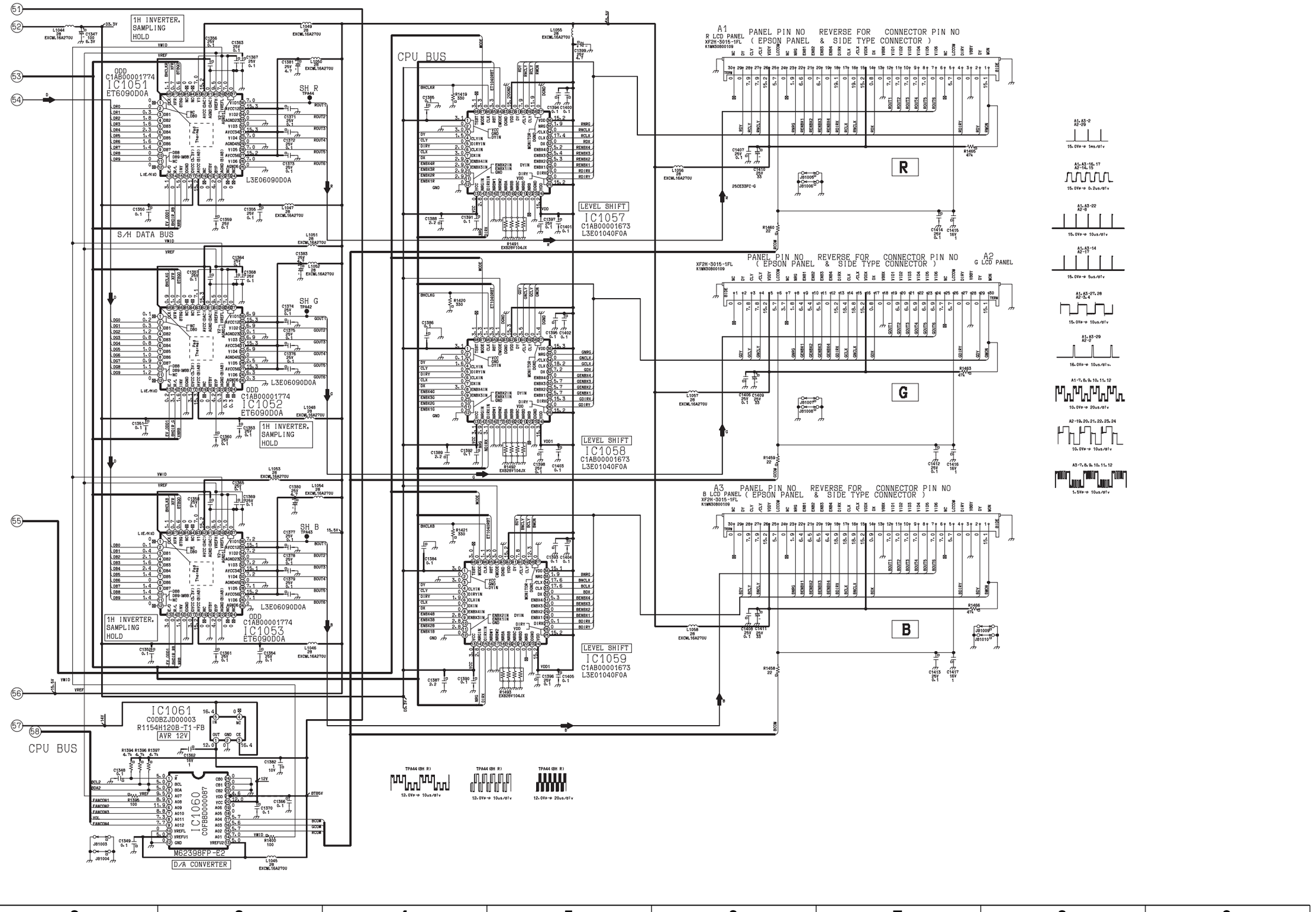
11.1 Power Supply



A-P.C.Board (4/5) TXANP01VJT2 (LC76)
TXANP01VJT3 (LC56)



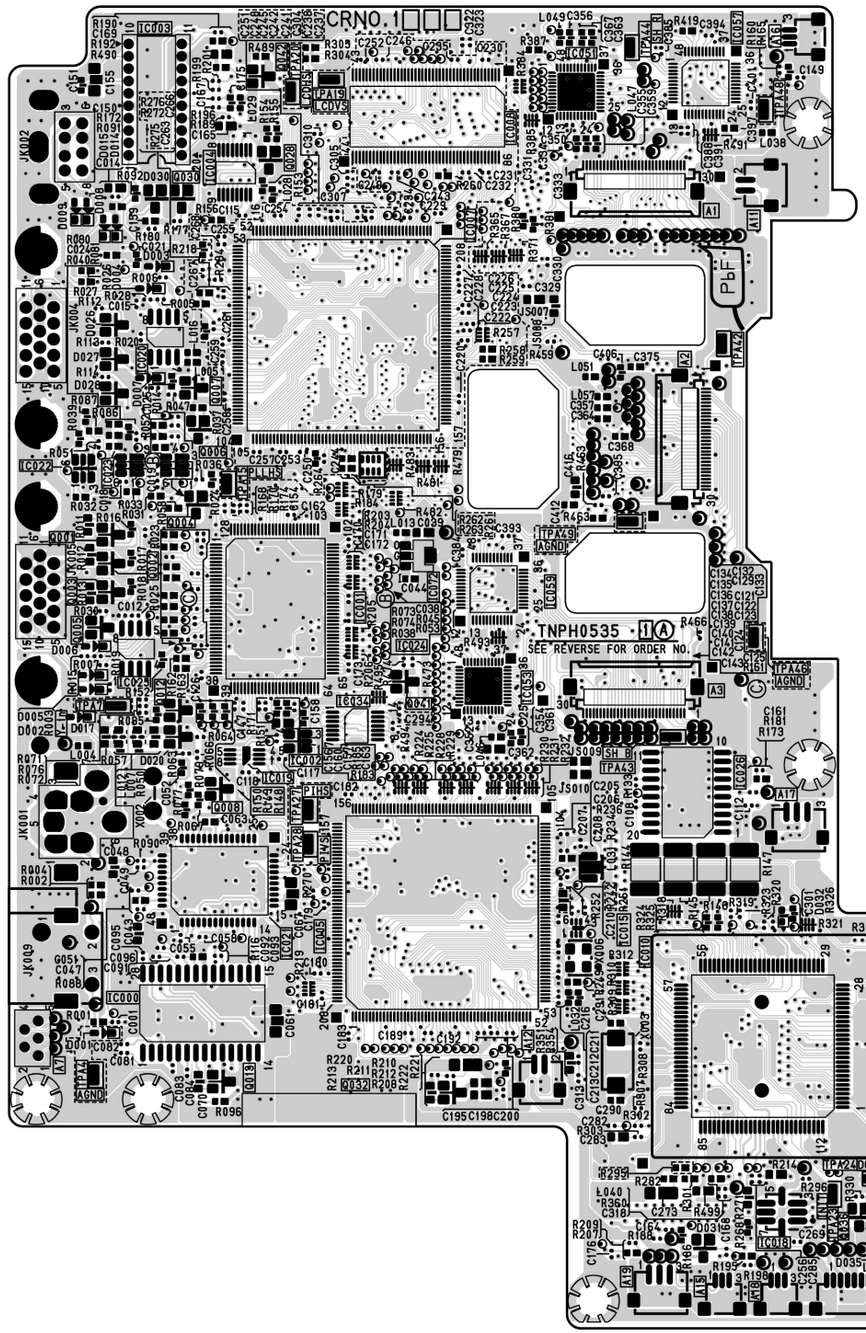
A-P.C.Board (5/5) TXANP01VJT2 (LC76)
TXANP01VJT3 (LC56)



F E D C B A

1 2 3 4 5 6 7 8 9

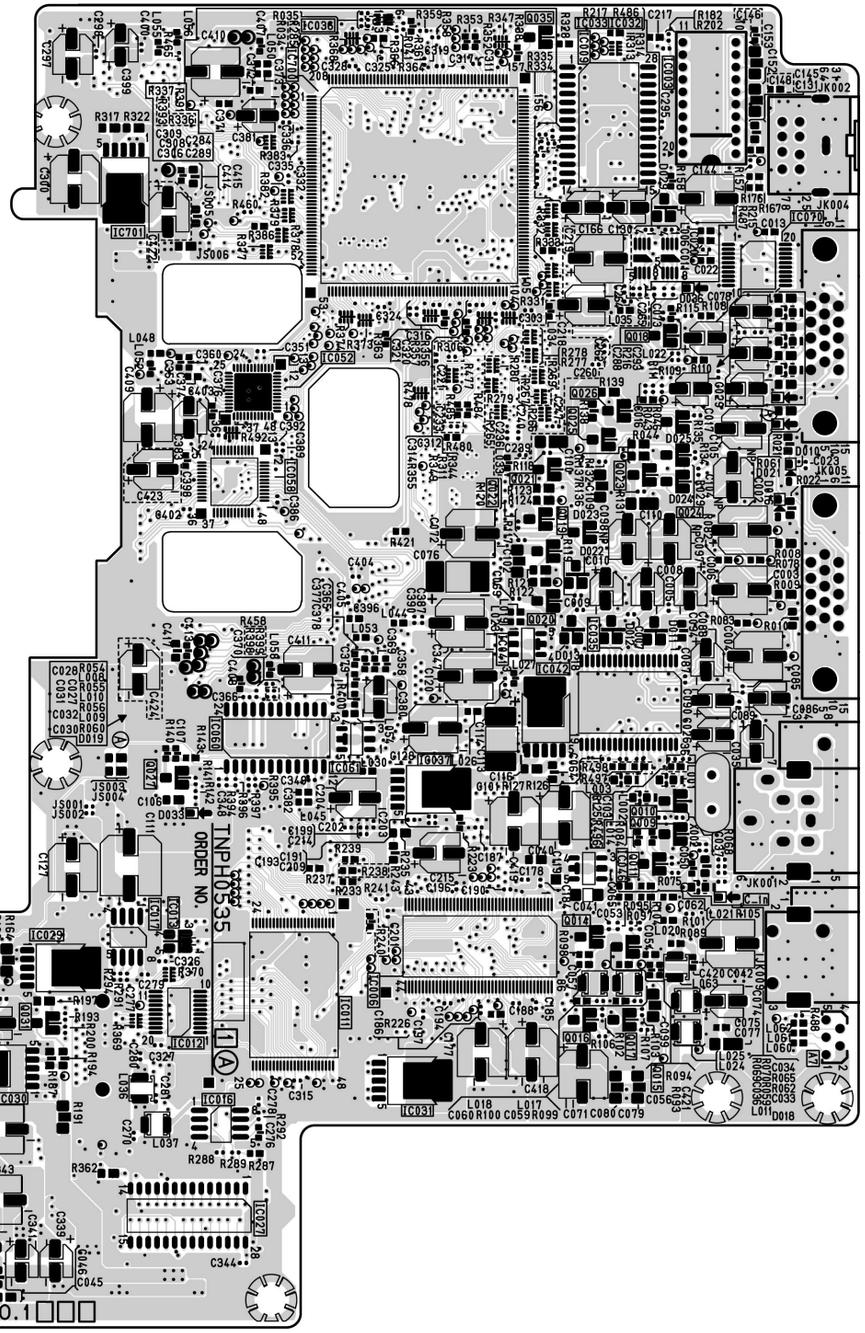
A-P.C.Board (Foil Side)　TXANP01VJT2 (LC76) / TXANP01VJT3 (LC56)



A-P.C.Board (Foil Side)			
IC			
IC1000	B-1	IC1022	D-1
IC1001	C-2	IC1023	D-1
IC1002	C-2	IC1024	C-2
IC1004	E-1	IC1025	C-1
IC1005	B-2	IC1026	C-3
IC1010	B-3	IC1034	C-2
IC1015	B-3	IC1051	E-3
IC1018	A-3	IC1053	C-2
IC1019	C-2	IC1057	E-3
IC1020	D-1	IC1059	C-2
IC1021	B-1	IC1072	C-2
TRANSISTOR			
Q1001	C-1	Q1030	E-1
Q1002	C-1	Q1032	A-2
Q1003	C-1	Q1033	A-4
Q1004	D-1	Q1034	A-4
Q1005	C-1	Q1036	A-4
Q1006	D-1	Q1037	B-4
Q1007	D-1	Q1038	B-4
Q1008	C-1	Q1039	A-4
Q1012	C-1	Q1040	A-4
Q1013	B-1	Q1041	C-2
Q1028	E-2	Q1042	E-2
TP			
TPA4	B-1	TPA28	B-2
TPA7	C-1	TPA42	D-3
TPA15	D-1	TPA43	C-3
TPA19	E-2	TPA44	E-3
TPA20	E-2	TPA46	C-3
TPA23	A-4	TPA48	E-3
TPA24	A-4	TPA49	D-3
TPA27	B-2		

ADDRESS INFORMATION

A-P.C.Board (Component Side)　TXANP01VJT2 (LC76) / TXANP01VJT3 (LC56)

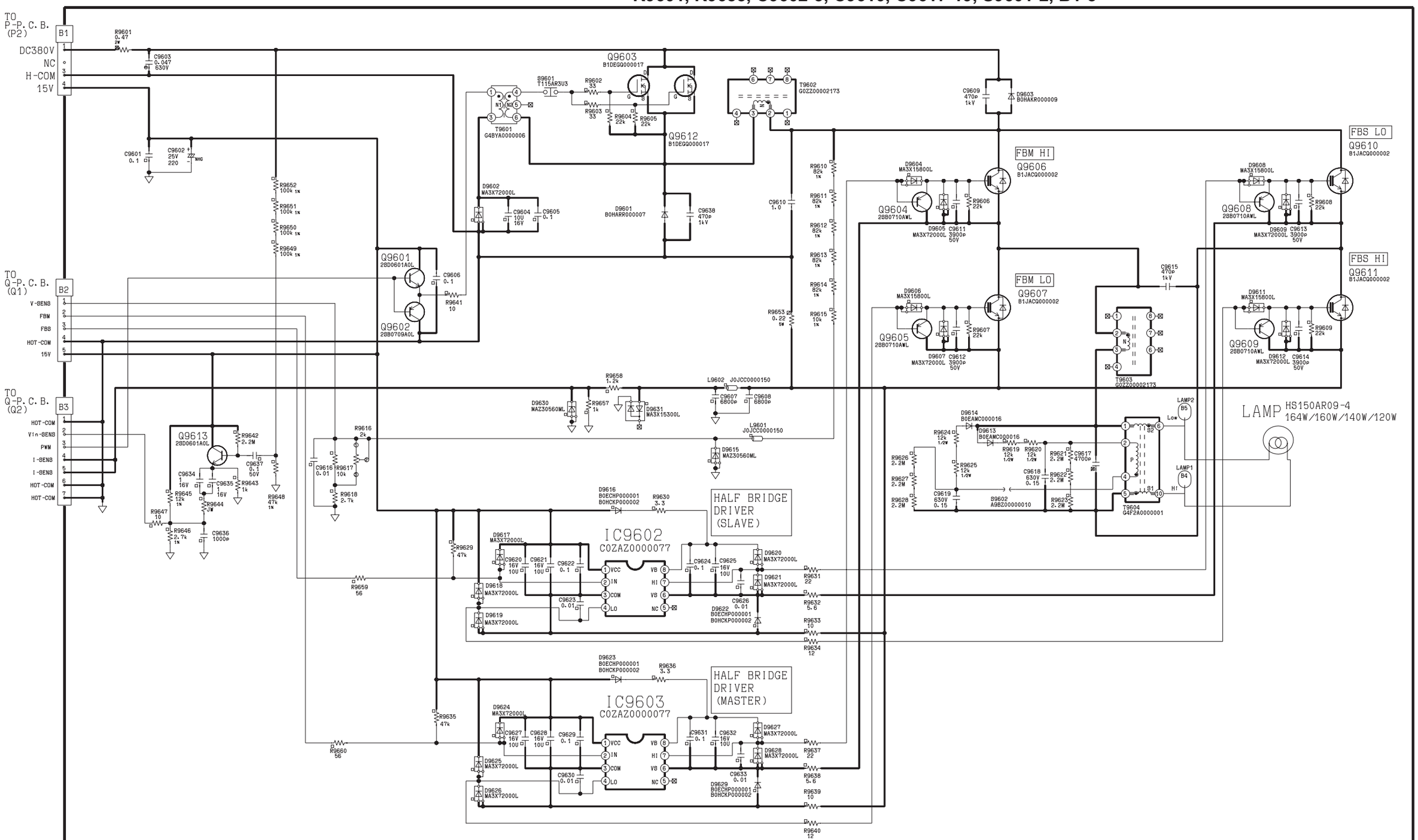


A-P.C.Board (Component Side)			
IC			
IC1003	E-8	IC1033	E-8
IC1006	B-7	IC1035	C-7
IC1009	E-7	IC1036	E-7
IC1011	B-6	IC1037	C-7
IC1012	B-6	IC1041	C-7
IC1013	B-6	IC1042	C-7
IC1016	A-6	IC1046	B-8
IC1017	B-6	IC1052	D-6
IC1027	A-6	IC1058	D-6
IC1028	A-5	IC1060	C-6
IC1029	B-6	IC1061	C-7
IC1030	B-5	IC1070	D-8
IC1031	B-7	IC1700	E-7
IC1032	E-8	IC1701	E-6
TRANSISTOR			
Q1009	B-8	Q1021	D-7
Q1010	B-8	Q1022	D-7
Q1011	B-8	Q1023	D-8
Q1014	B-7	Q1024	D-8
Q1015	B-8	Q1025	D-7
Q1016	B-7	Q1026	D-7
Q1017	B-7	Q1027	C-6
Q1018	D-8	Q1029	B-5
Q1019	C-7	Q1031	B-5
Q1020	C-7	Q1035	E-7

ADDRESS INFORMATION

B-Module **TNPA2808 (TXANP04VJT2)** **Module Replacement**

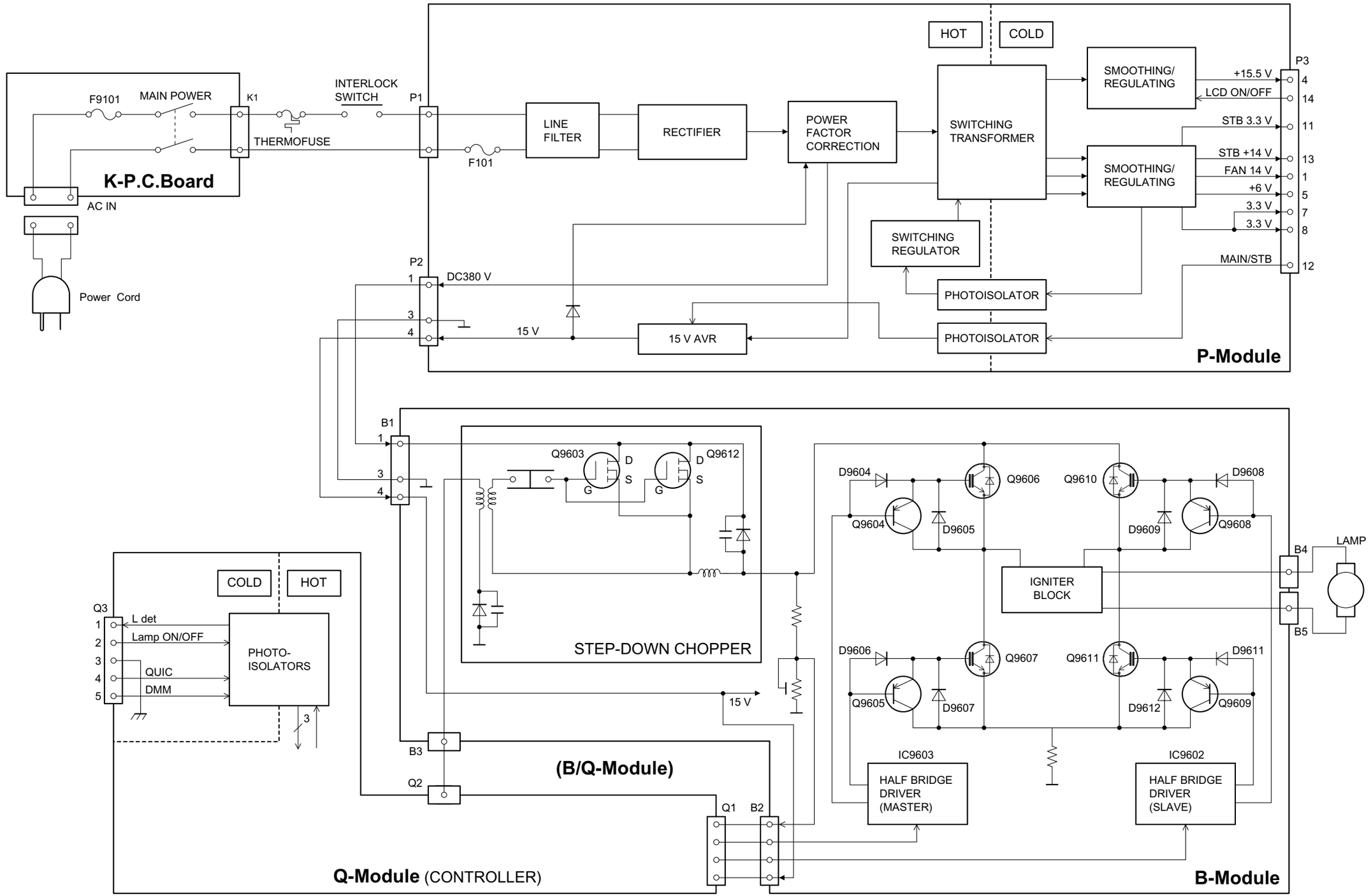
Only supplied components IC9602-3, Q9603-12, D9601, D9604-9, D9611-14, T9601-4, R9601, R9653, C9602-3, C9610, C9617-19, S9601-2, B1-3



1 2 3 4 5 6 7 8 9

A B C D E F

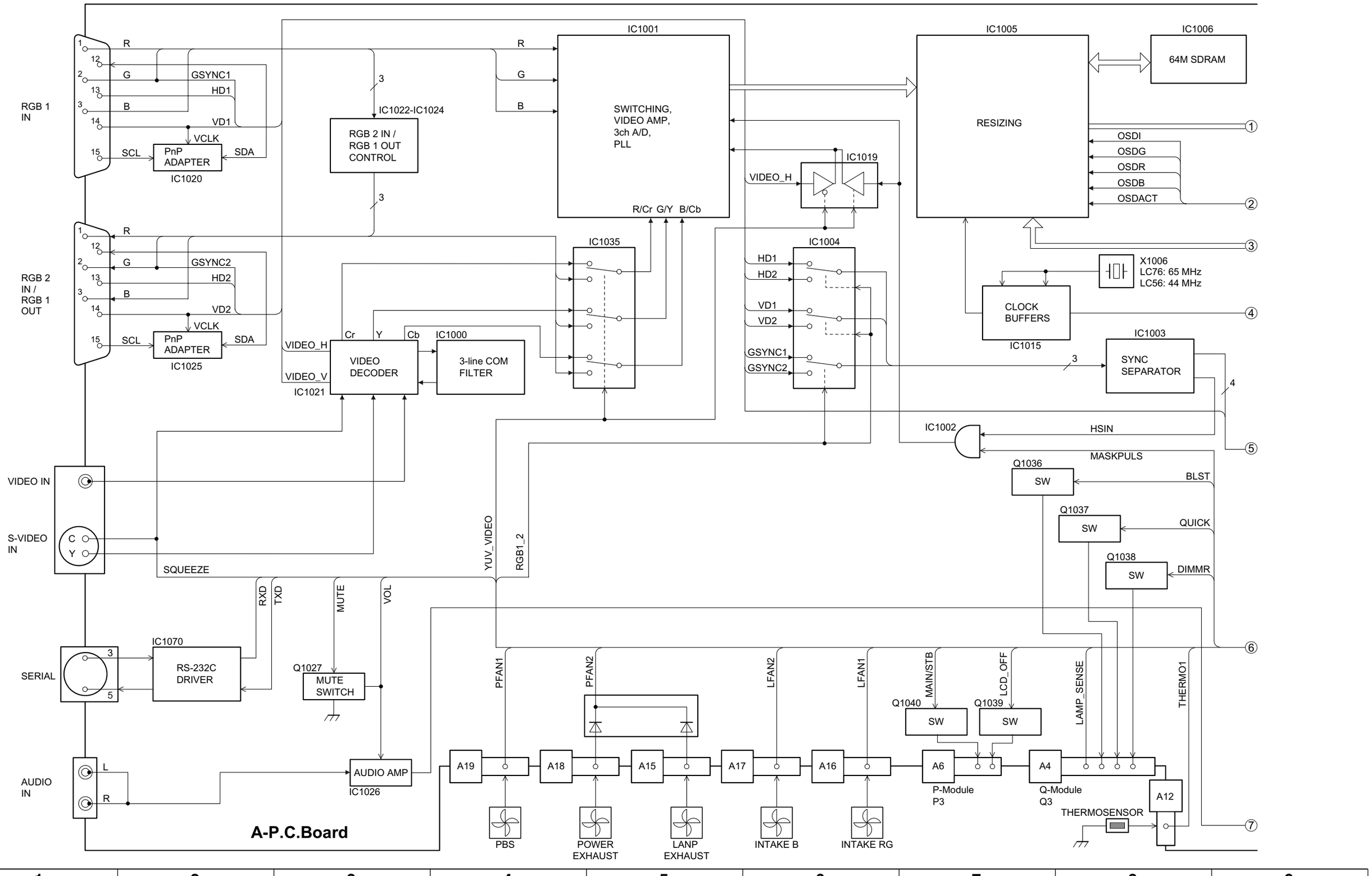
Power Supply



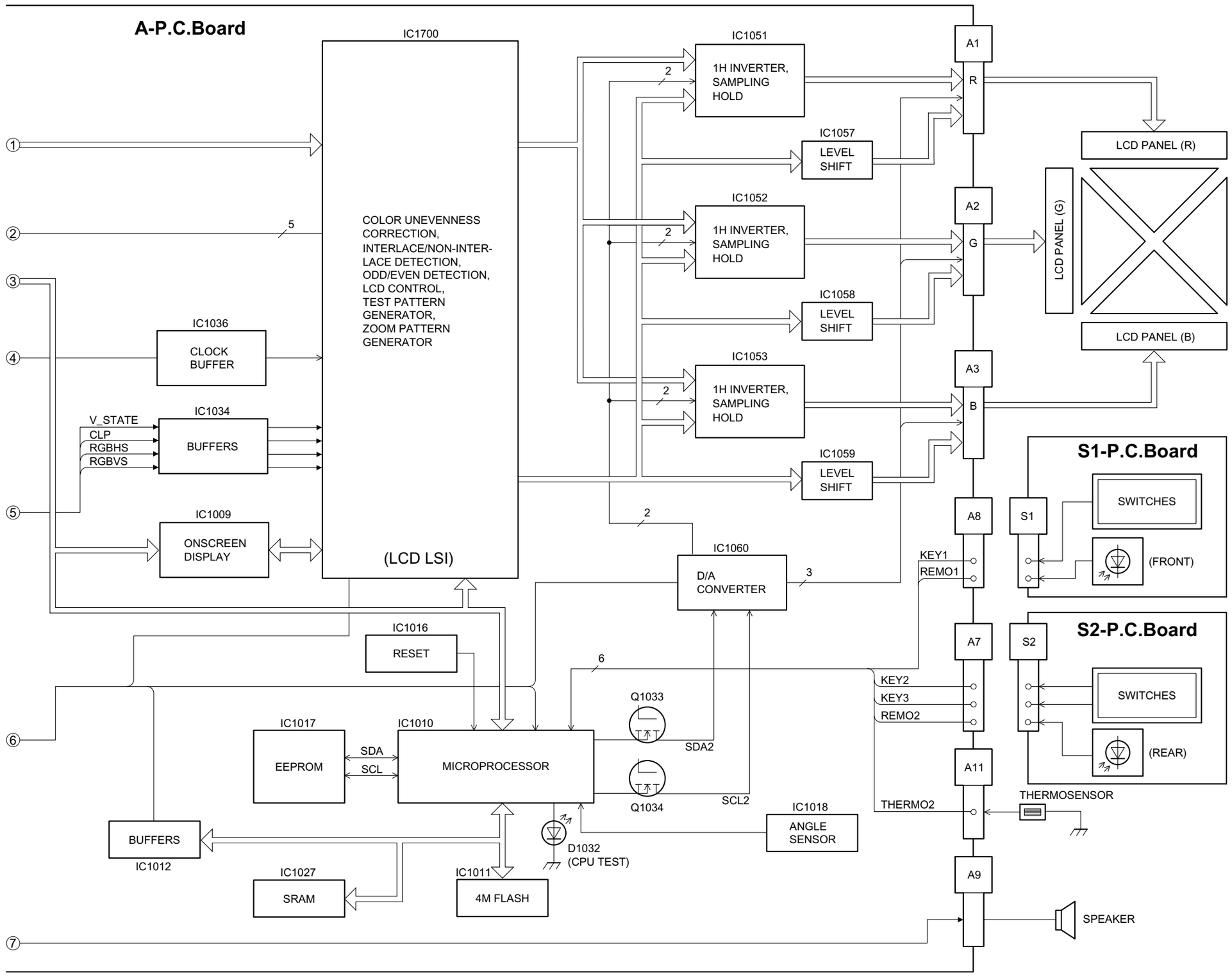
F E D C B A

1 2 3 4 5 6 7 8 9

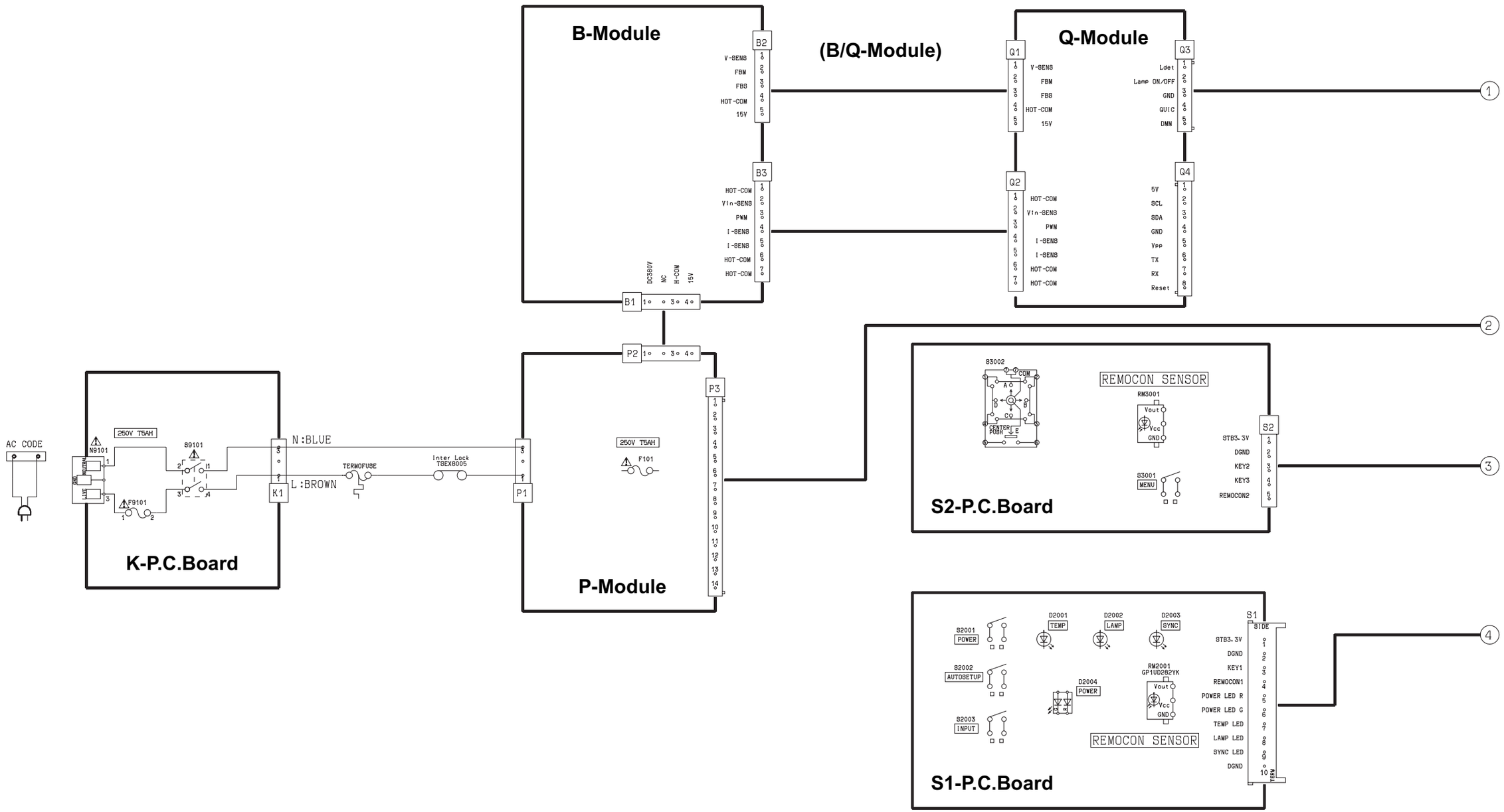
Signal Processing (1/2)



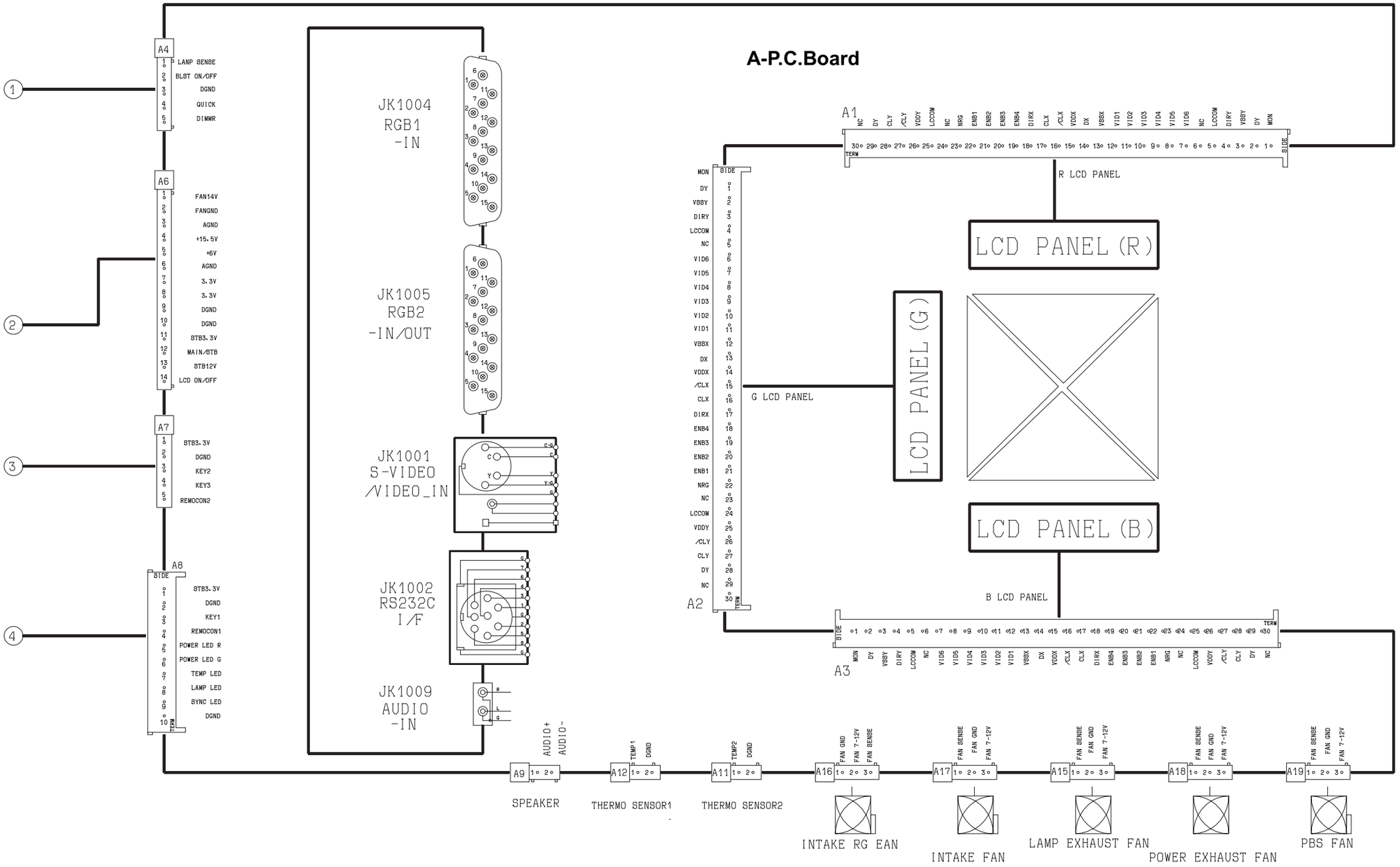
Signal Processing (2/2)



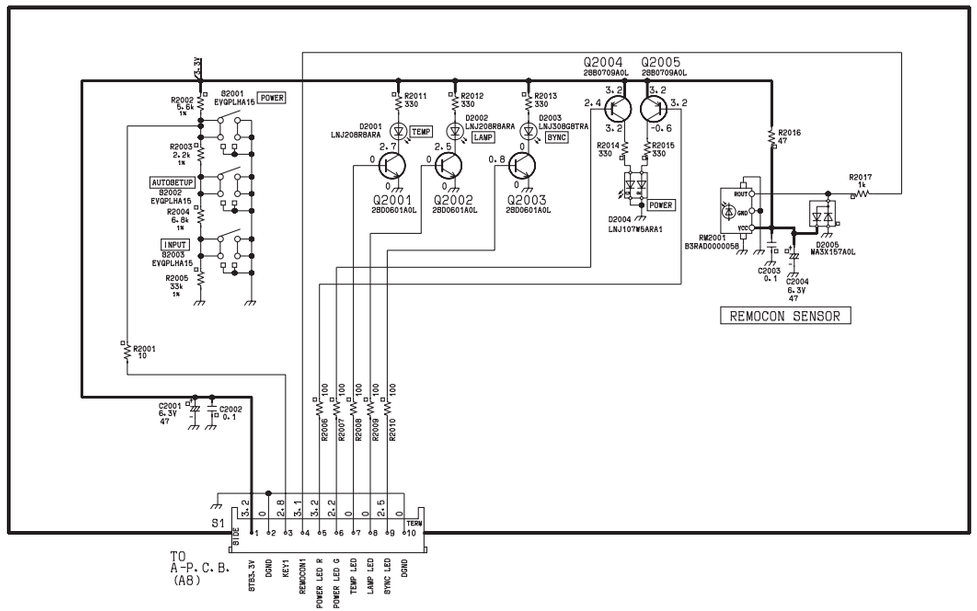
Interconnection Block Diagram (1/2)



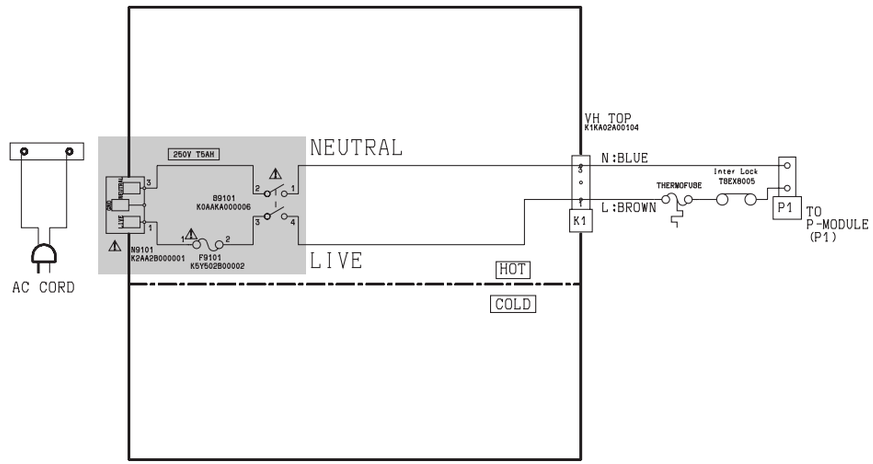
Interconnection Block Diagram (2/2)



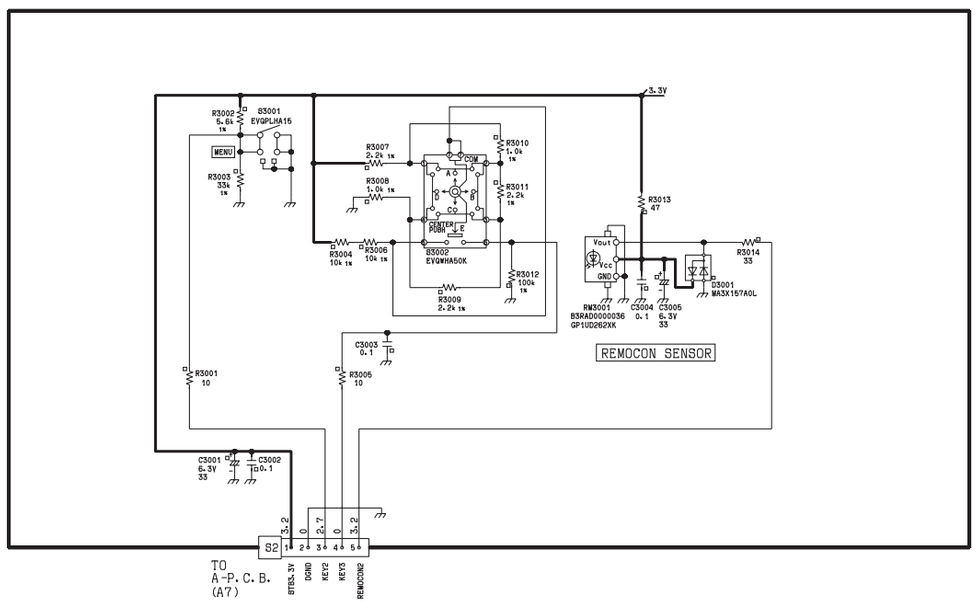
S1-P.C.Board TNPA2810



K-P.C.Board TXANP03VJT2



S2-P.C.Board TNPA2811



Schematic Diagram for Model PT-LC76E / LC56E

Important Safety Notice

Components identified by the international symbol ⚠ have special characteristics important for safety specified ones.

Schematic Diagram for Model PT-LC76U / LC56

IMPORTANT SAFETY NOTIC

THE SHADED AREA ON THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMP
HAZARDS.
WHEN SERVICING, IT IS ESSENTIAL THAT ONLY MANUFACTURER'S SPECIFIED PARTS BE US
THE SCHEMATIC.

Notes:

1. **Resistor**

   All the resistors are carbon 1/4W resistors, unless marked as follows: The unit of resistance is an OHM

   ○ : Nonflammable
   △ : Solid
   ⊠ : Wire Wound
   ⊠ : Metal Oxide
   ◎ : Metal Film
   ⊗ : Fuse

2. **Capacitor**

   ⊗ : Temperature Compensation
   Ⓜ : Polyester
   ⓜ : Metalized Polyester
   ⊠ : Polypropylene
   ⁺⁻ : Electrolytic
   NP : Bipolar
   Ⓣ : Dipped Tantalum
   Ⓩ : Z-Type

3. **Coil**

   The unit of inductance is a H, unless otherwise noted.

4. **Test Point**

   : Test Point

5. **Voltage Measurement**

   The voltage is measured by an electronic voltmeter receiving the colorbar signal when all the customer

6. **Color code for the links between diagrams and circuit boards**

From/To		To/From	Color code
Block diagram	↔	Schematic diagram	Magenta
Schematic diagram	↔	Schematic diagram	Green
Schematic diagram	↔	Circuit boards	Yellow
Schematic diagram	↔	Waveforms	Cyan (Light blue)

7. **HOT and COLD indications**

   The power circuit board contains a circuit area using a separate power supply to isolate the ground con
   diagram. Take the precautions below:

8. **This schematic diagram is the latest at the time of printing and the subject to change without no**

Precautions:

1. NEVER touch the HOT part or the HOT and COLD parts at the same time, or you may get an electr
2. NEVER short-circuit the HOT and COLD circuits, or the fuse may blow and the parts may break.
3. NEVER connect an instrument such oscilloscope to the HOT and COLD circuit simultaneously, or the fuse m
4. MAKE SURE to unplug the power cord from the power outlet before removing the chassis.

E / LC56E

mportant Safety Notice

stics important for safety. When replacing any of these components, use only the manufacturer's

76U / LC56U

ORTANT SAFETY NOTICE

PECIAL FEATURES IMPORTANT FOR PROTECTION FROM FIRE AND ELECTRICAL SHOCK

ECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SHADED AREAS OF

of resistance is an OHM [Ω] (K=1 000 M=1 000 000).

al when all the customer's controls are set to the standard condition.

Color code
agenta
reen
ellow
yan (Light blue)

o isolate the ground connection. The circuit is defined by HOT and COLD indications in the schematic

ct to change without notice.

or you may get an electric shock.

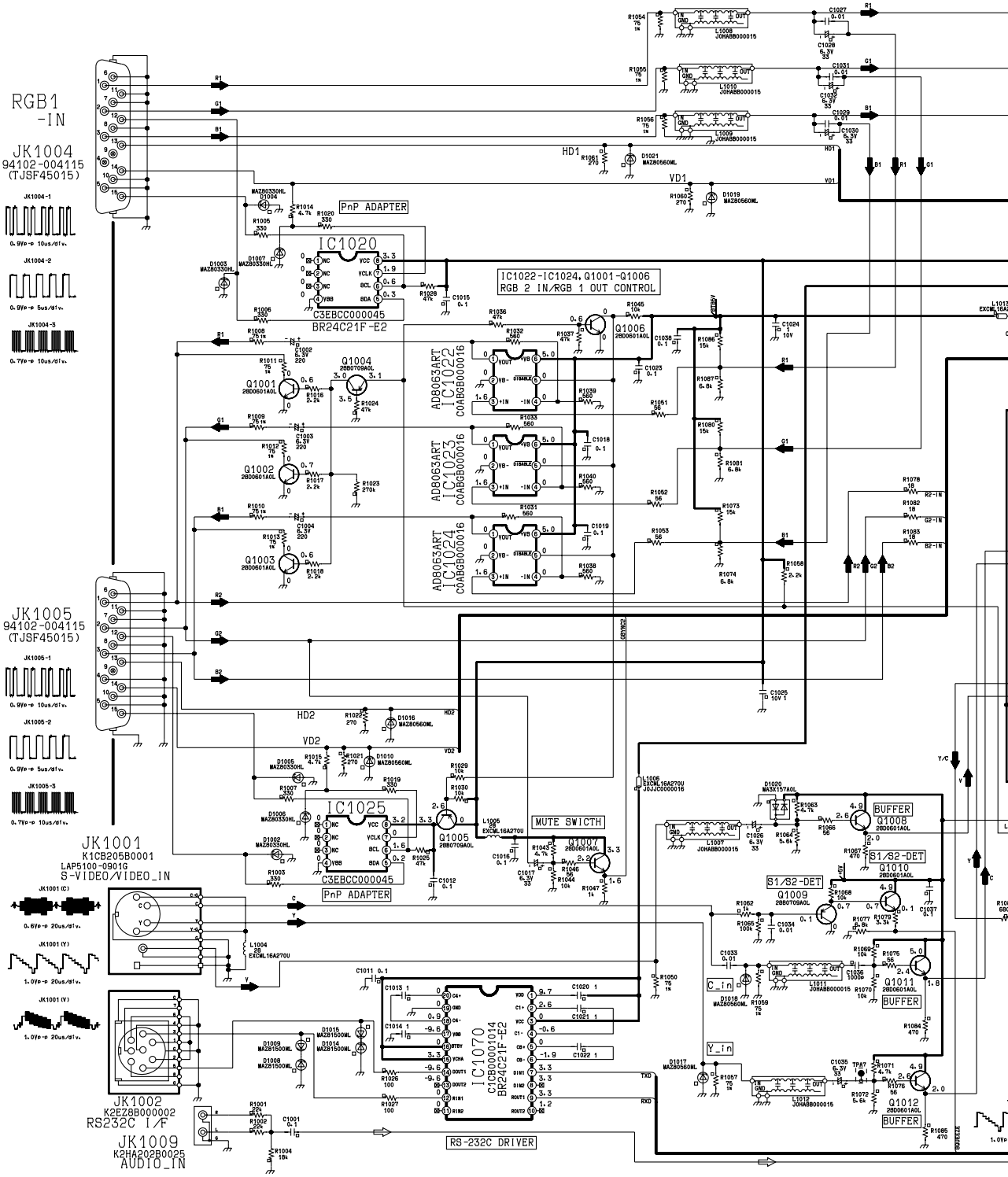
the parts may break.

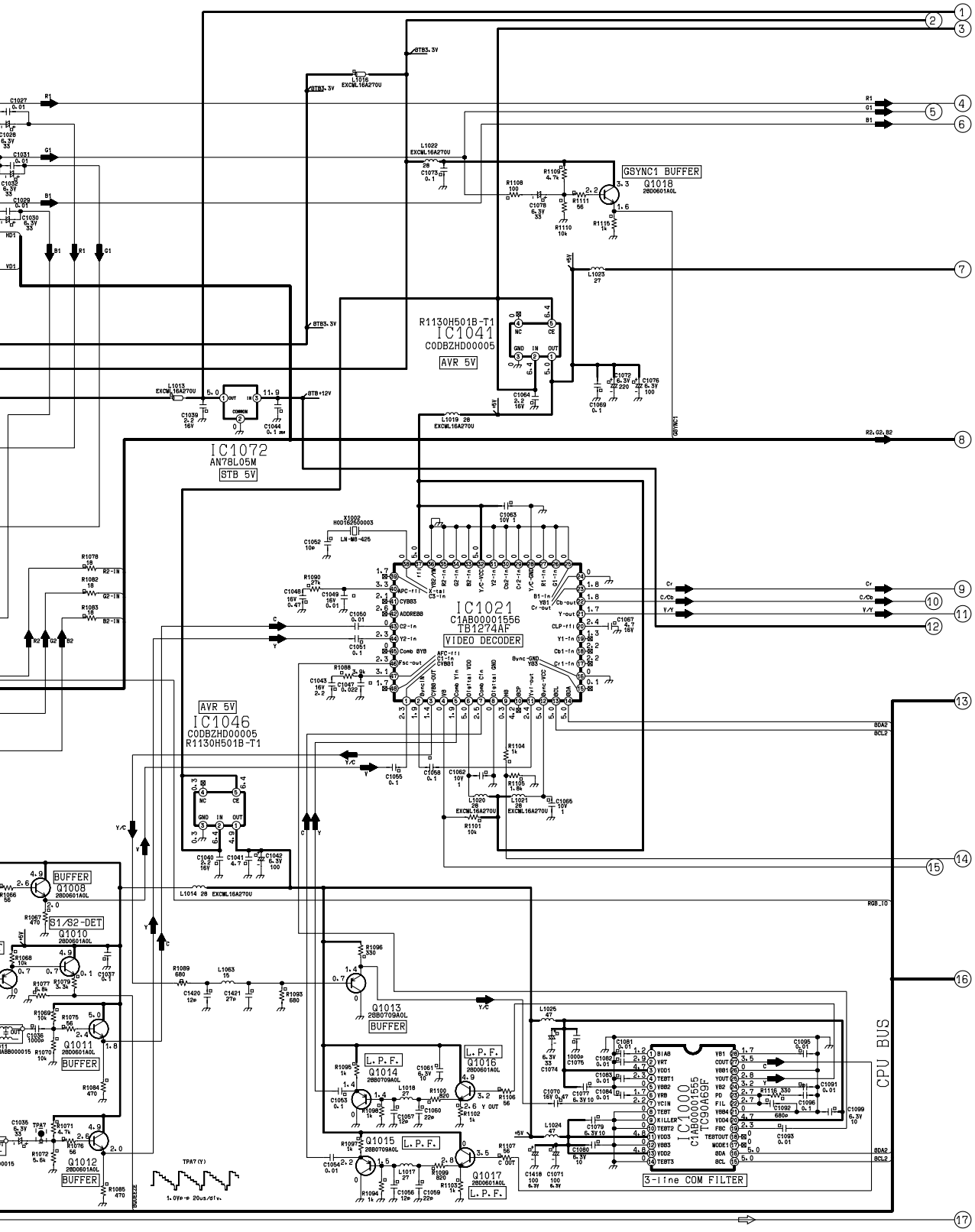
multaneously, or the fuse may blow. Connect the ground of instruments to the ground of the circuit being measured.

ing the chassis.

12.1. A-P.C.Board (1/5)

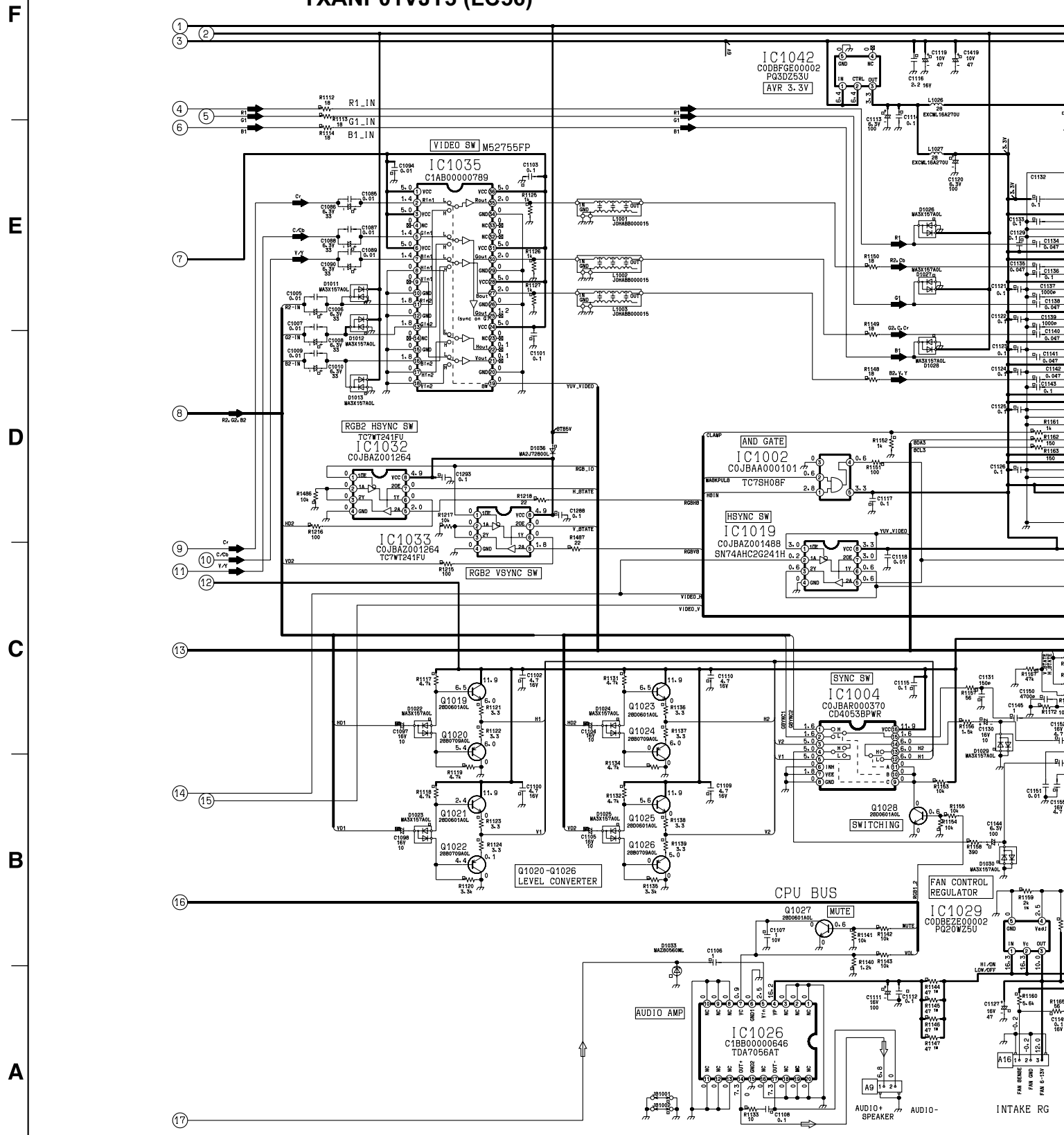
A-P.C.Board (1/5) TXANP01VJT2 (LC76)
TXANP01VJT3 (LC56)

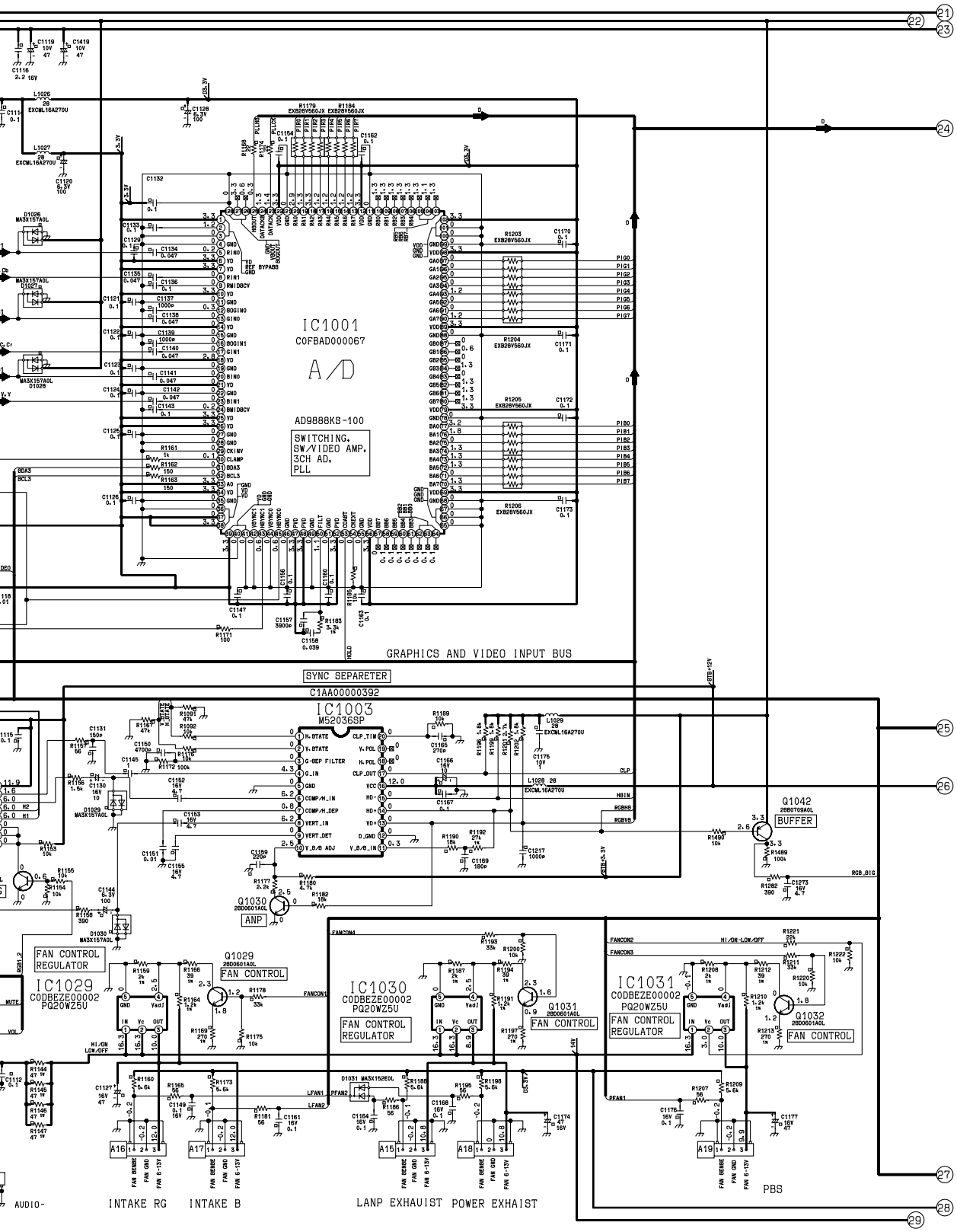



IC1072
AN78L05M
STB 5V
R1130H501B-T1
IC1041
C0DBZHD00005
AVR 5V
GSYNC1 BUFFER
Q1018
IC1021
C1AB00001556
TB1274AF
VIDEO DECODER
AVR 5V
IC1046
C0DBZHD00005
R1130H501B-T1
BUFFER
Q1008
S1/S2-DET
Q1010
BUFFER
Q1011
BUFFER
Q1012
BUFFER
Q1013
BUFFER
L.P.F.
Q1014
L.P.F.
Q1016
Q1015
L.P.F.
Q1017
L.P.F.
IC1000
C1AB00001565
TC90A69F
3-line COM FILTER
CPU BUS

12.2. A-P.C.Board (2/5)

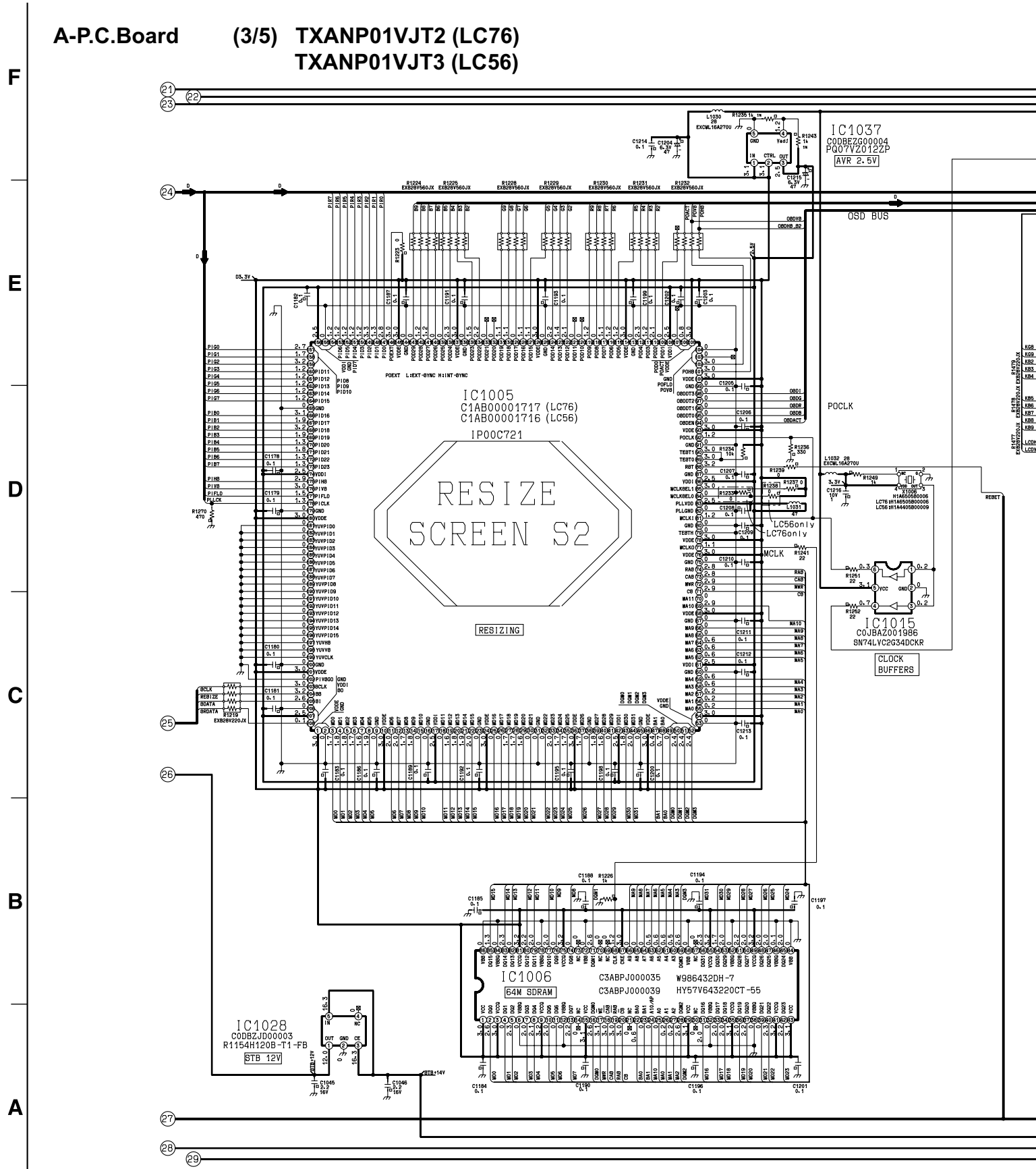
A-P.C.Board (2/5) TXANP01VJT2 (LC76)
TXANP01VJT3 (LC56)

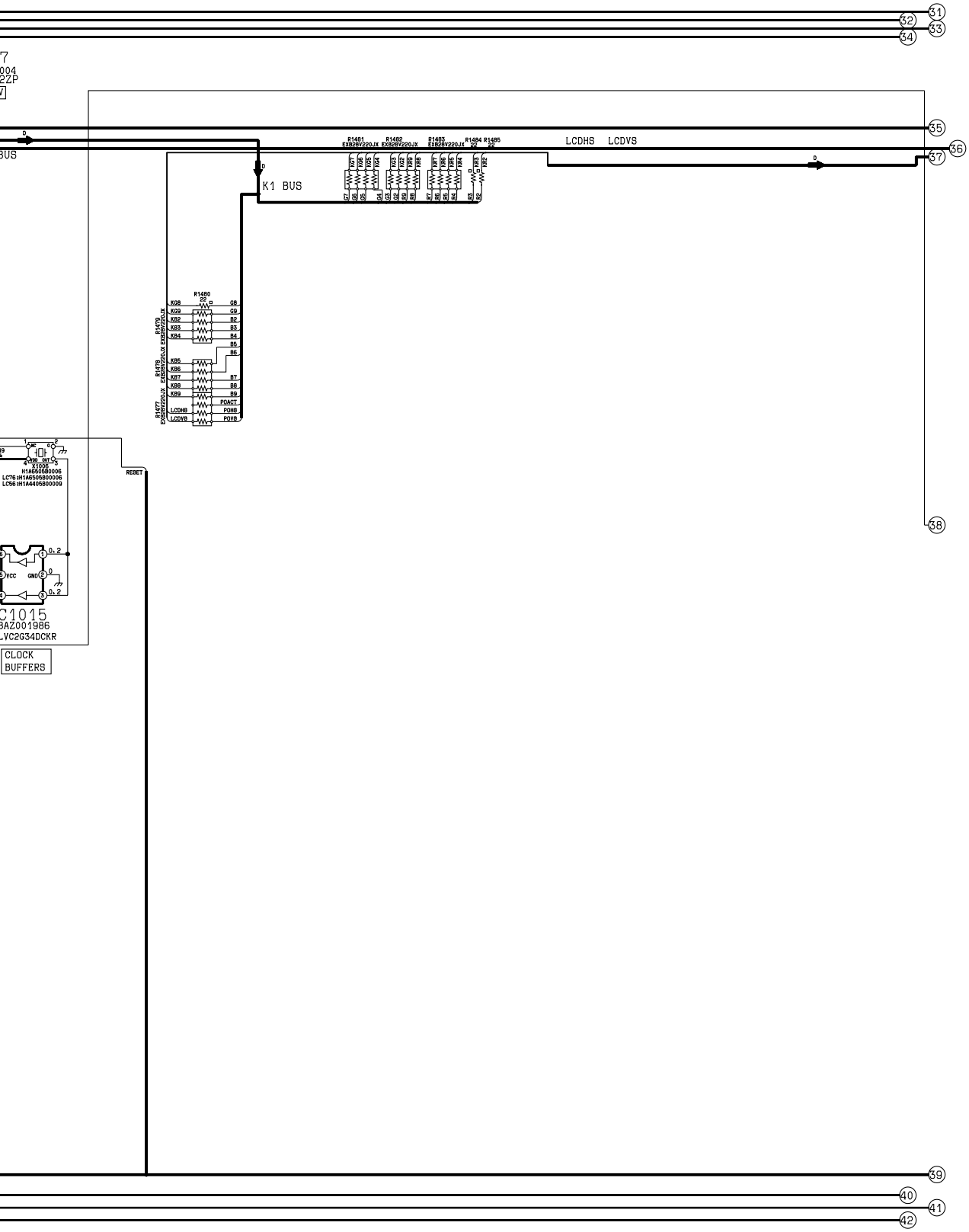



IC1001
C0FBAD000067
A/D
AD9888KS-100
SWITCHING,
SW/VIDEO AMP,
3CH AD,
PLL
GRAPHICS AND VIDEO INPUT BUS
SYNC SEPARETER
C1AA00000392
IC1003
M52036SP
Q1042
2SB0709A0L
BUFFER
Q1030
2SD0601A0L
ANP
IC1029
C0DBEZE00002
PQ20WZ5U
FAN CONTROL
REGULATOR
Q1029
FAN CONTROL
IC1030
C0DBEZE00002
PQ20WZ5U
FAN CONTROL
REGULATOR
Q1031
FAN CONTROL
IC1031
C0DBEZE00002
PQ20WZ5U
FAN CONTROL
REGULATOR
Q1032
FAN CONTROL
AUDIO-
INTAKE RG
INTAKE B
LANP EXHAUIST
POWER EXHAIST
PBS

12.3. A-P.C.Board (3/5)

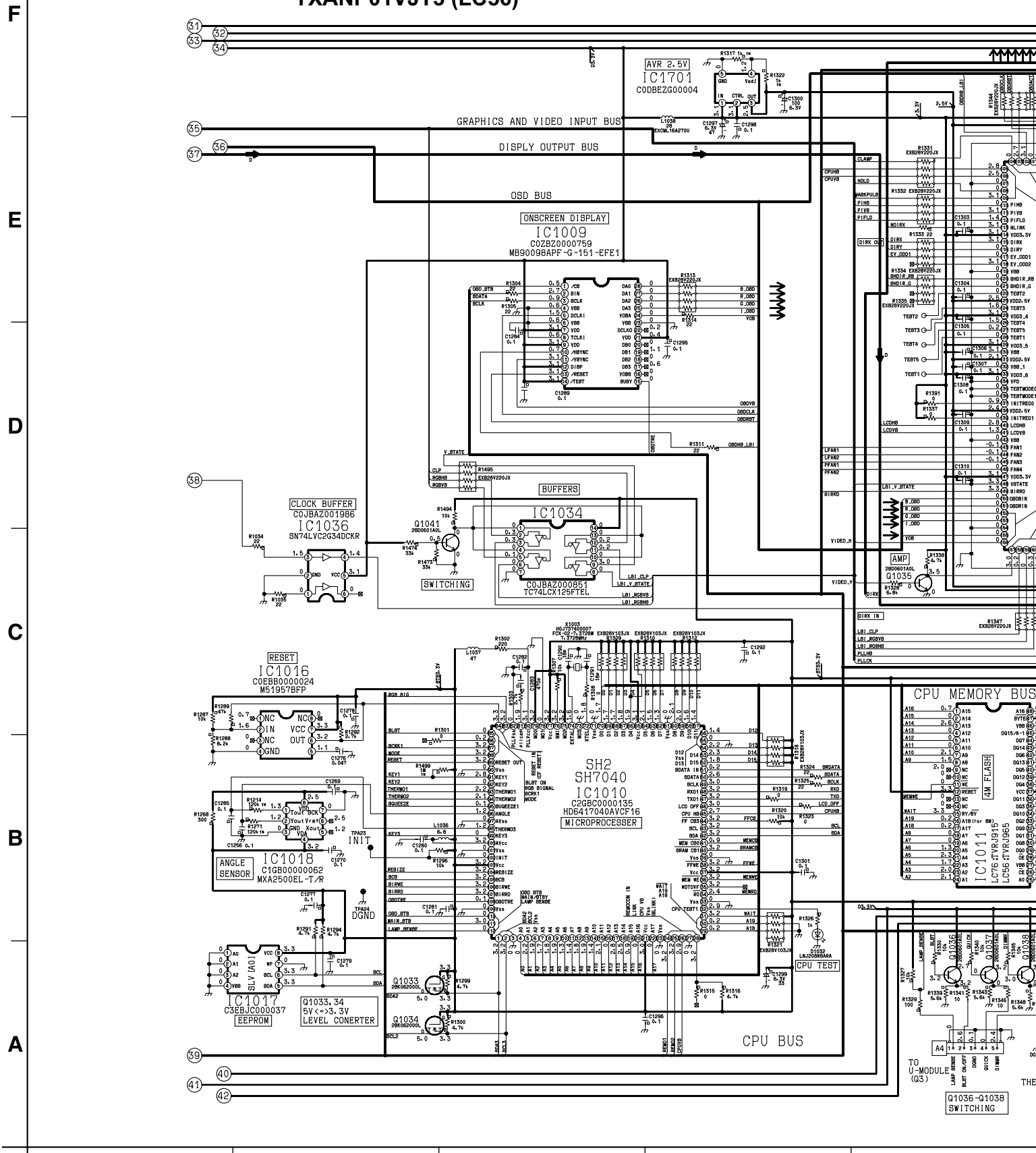
A-P.C.Board (3/5) TXANP01VJT2 (LC76)
TXANP01VJT3 (LC56)

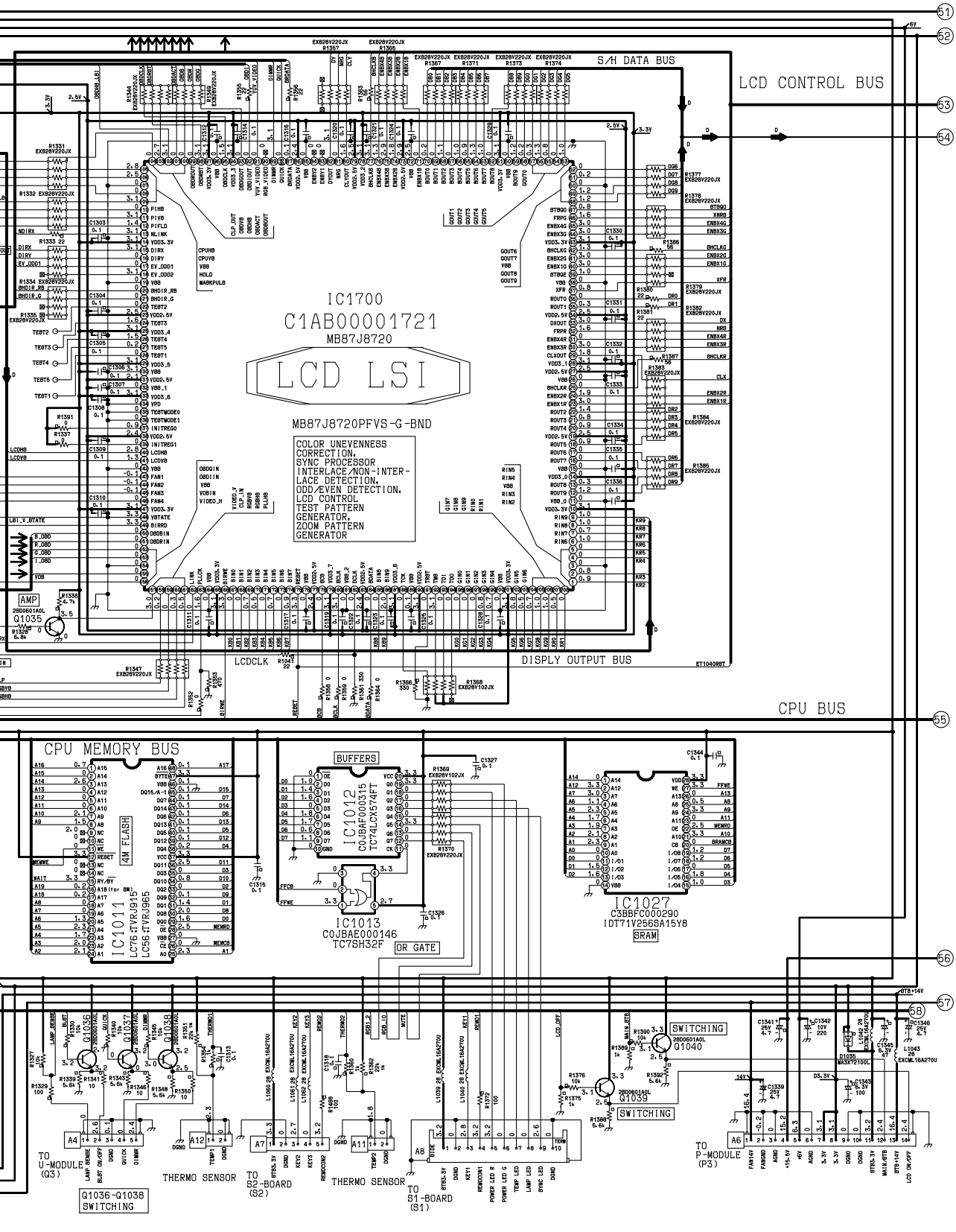



LCDHS
LCDVS
K1 BUS
RESET
CLOCK
BUFFERS

12.4. A-P.C.Board (4/5)

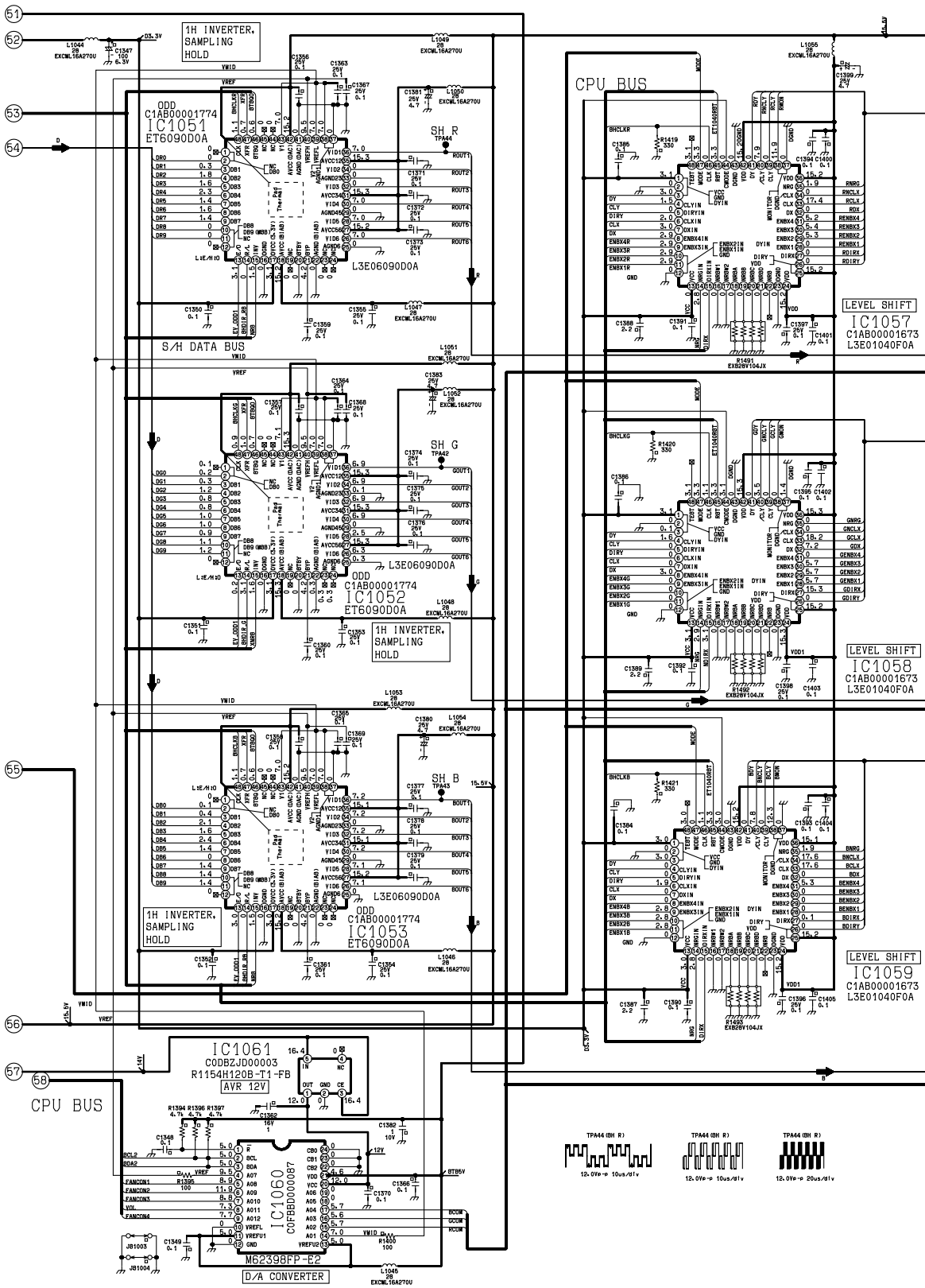
A-P.C.Board (4/5) TXANP01VJT2 (LC76)
TXANP01VJT3 (LC56)

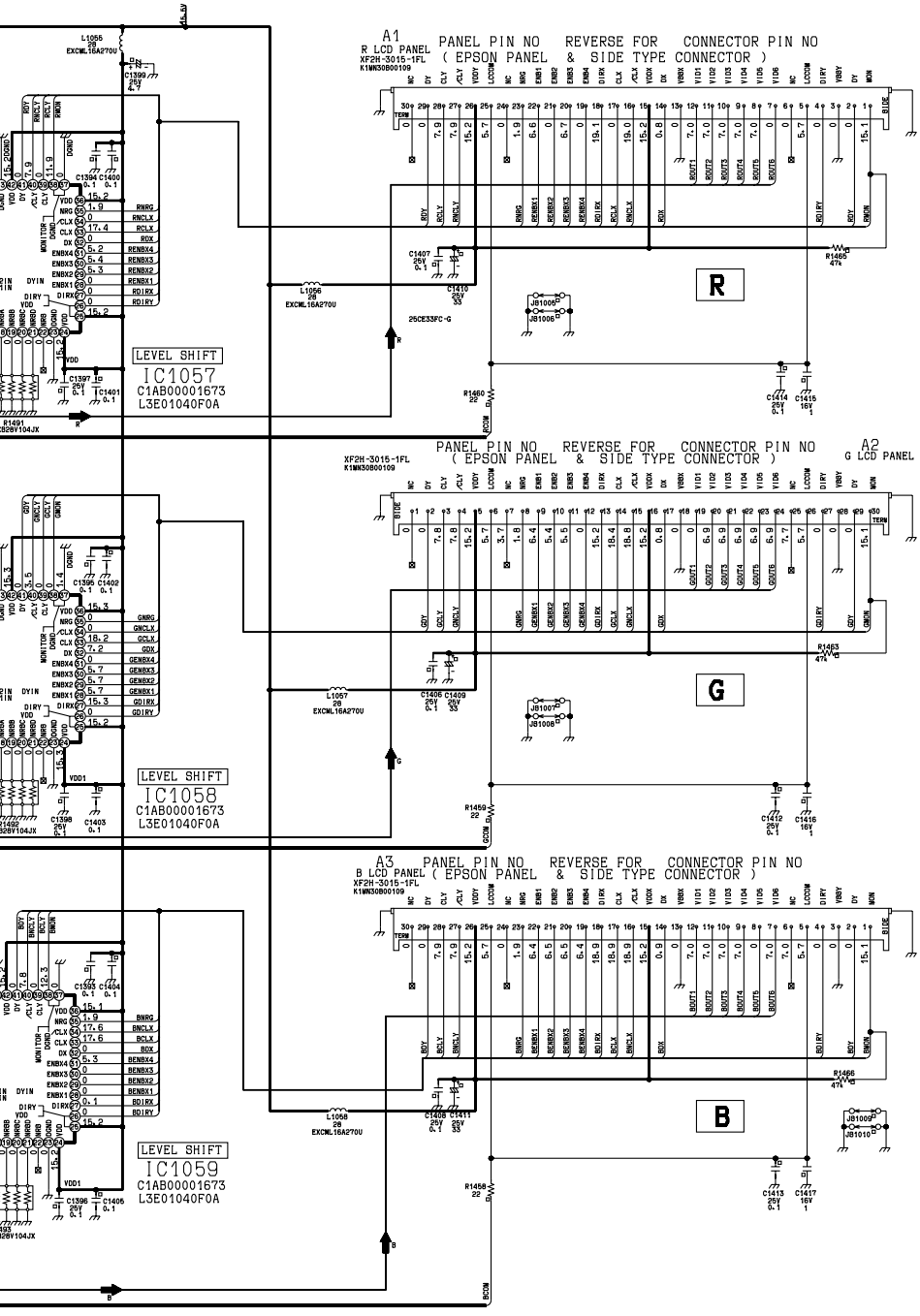


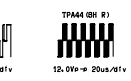

S/H DATA BUS
LCD CONTROL BUS
IC1700
C1AB00001721
MB87J8720
LCD LSI
MB87J8720PFVS-G-BND
COLOR UNEVENNESS CORRECTION, SYNC PROCESSOR INTERLACE/NON-INTER-LACE DETECTION, ODD/EVEN DETECTION, LCD CONTROL TEST PATTERN GENERATOR, ZOOM PATTERN GENERATOR
DISPLY OUTPUT BUS
CPU BUS
CPU MEMORY BUS
4M FLASH
IC1011
LC76:TVRJ915
LC56:TVRJ965
BUFFERS
IC1012
C0JBAF000315
TC74LCX574FT
IC1013
C0JBAE000146
TC7SH32F
OR GATE
IC1027
C3BBFC000290
IDT71V256SA15YB
SRAM
AMP
Q1035
SWITCHING
Q1040
Q1059
Q1036-Q1038
SWITCHING
TO U-MODULE (Q3)
THERMO SENSOR
TO S2-BOARD (S2)
THERMO SENSOR
TO S1-BOARD (S1)
TO P-MODULE (P3)

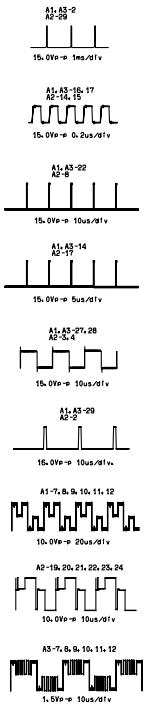
12.5. A-P.C.Board (5/5)

A-P.C.Board (5/5) TXANP01VJT2 (LC76)
TXANP01VJT3 (LC56)




A1
R LCD PANEL
XF2H-3015-1FL
K1MN30B00109
PANEL PIN NO REVERSE FOR CONNECTOR PIN NO
(EPSON PANEL & SIDE TYPE CONNECTOR)
R
LEVEL SHIFT
IC1057
C1AB00001673
L3E01040F0A
A2
G LCD PANEL
XF2H-3015-1FL
K1MN30B00109
PANEL PIN NO REVERSE FOR CONNECTOR PIN NO
(EPSON PANEL & SIDE TYPE CONNECTOR)
G
LEVEL SHIFT
IC1058
C1AB00001673
L3E01040F0A
A3
B LCD PANEL
XF2H-3015-1FL
K1MN30B00109
PANEL PIN NO REVERSE FOR CONNECTOR PIN NO
(EPSON PANEL & SIDE TYPE CONNECTOR)
B
LEVEL SHIFT
IC1059
C1AB00001673
L3E01040F0A


TPA44 (BH R)
12.0Vp-p 20us/div

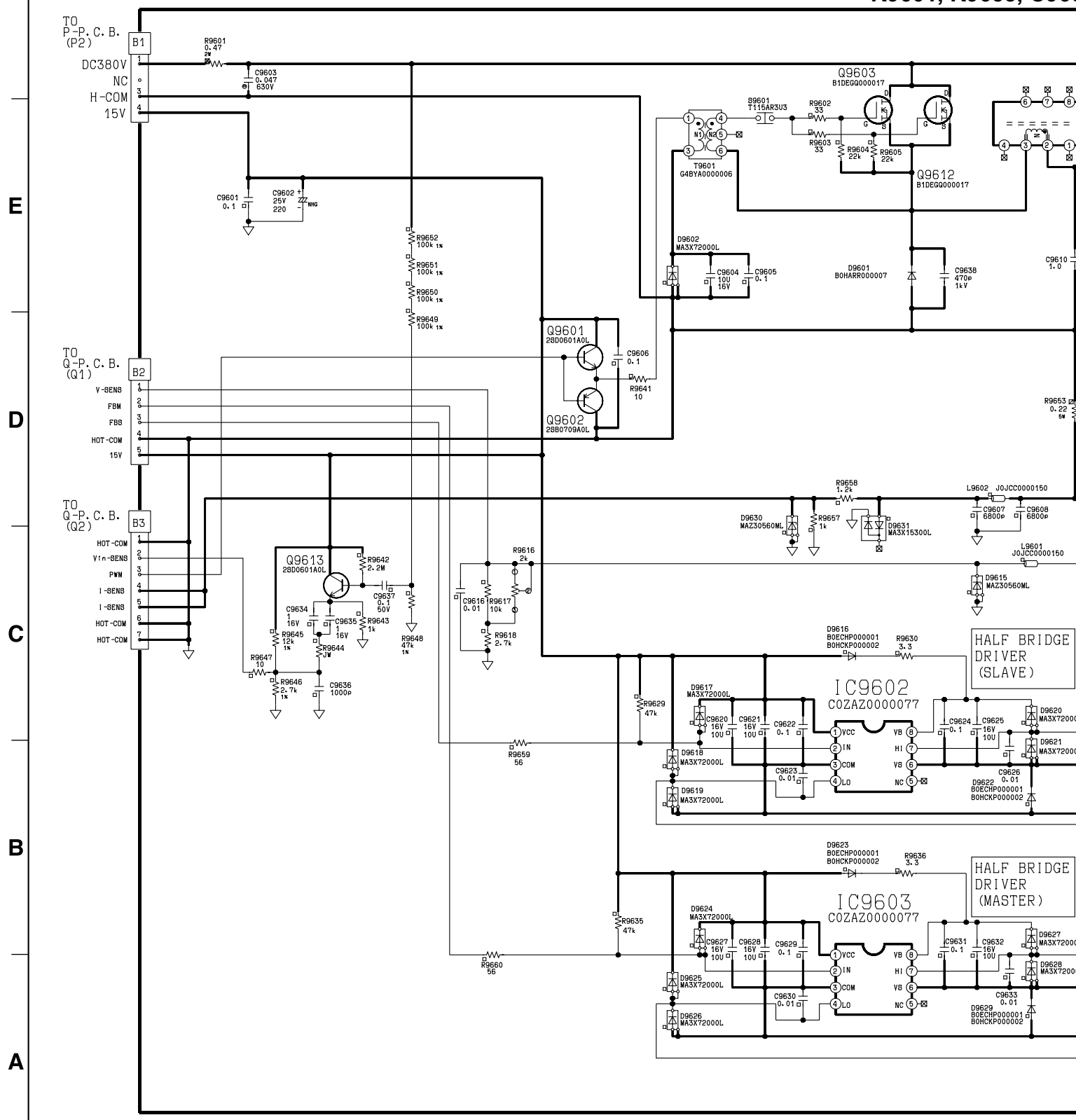

A1-A3-2
A2-28
15.0Vp-p 1ms/div
A1-A3-16, 17
A2-14, 15
15.0Vp-p 0.2us/div
A1-A3-22
A2-8
15.0Vp-p 10us/div
A1-A3-14
A2-17
15.0Vp-p 5us/div
A1-A3-27, 28
A2-3, 4
15.0Vp-p 10us/div
A1-A3-29
A2-2
15.0Vp-p 10us/div.
A1-7, 8, 9, 10, 11, 12
10.0Vp-p 20us/div
A2-19, 20, 21, 22, 23, 24
10.0Vp-p 10us/div
A3-7, 8, 9, 10, 11, 12
1.5Vp-p 10us/div

12.6. B-Module

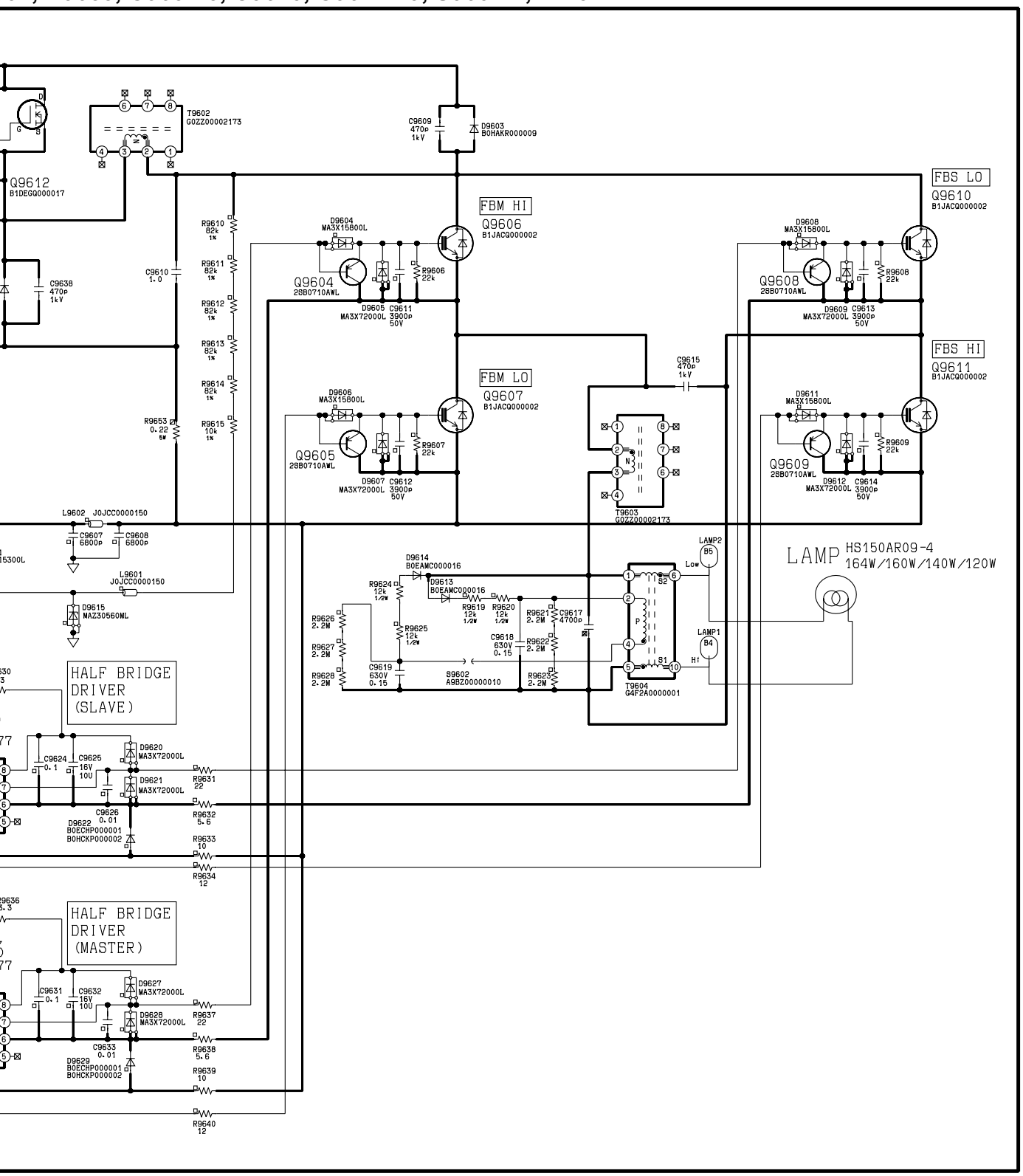
B-Module **TNPA2808 (TXANP04VJT2)** **Module Replacement**

Only supplied components IC9602-3, Q9603-12

R9601, R9653, C960

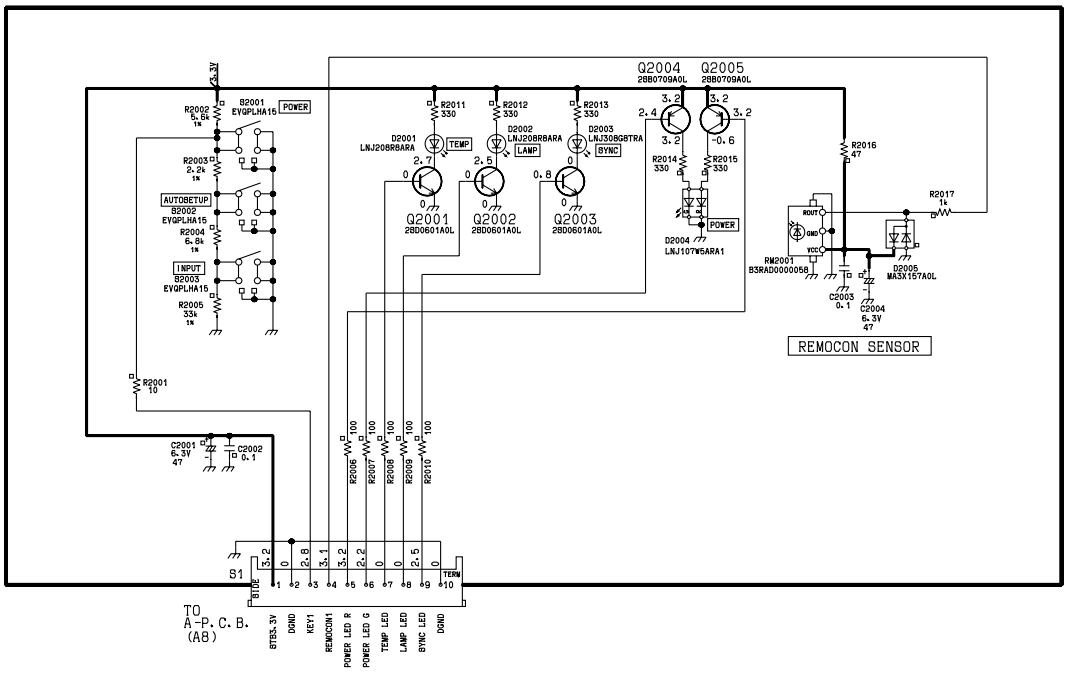


602-3, Q9603-12, D9601, D9604-9, D9611-14, T9601-4, 601, R9653, C9602-3, C9610, C9617-19, S9601-2, B1-3

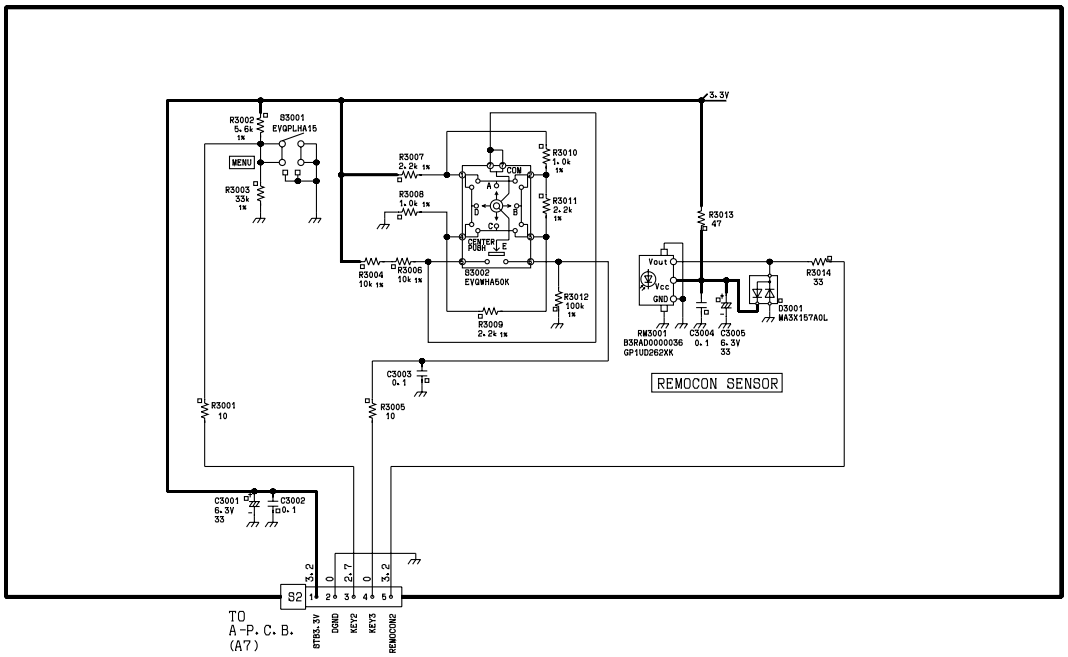


12.7. S1-P.C.Board, S2-P.C.Board, K-P.C.Board

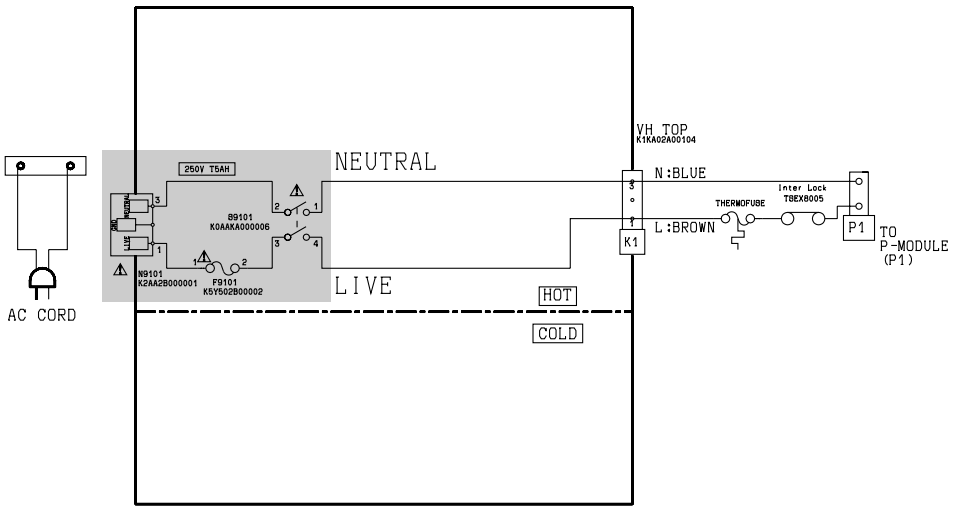
S1-P.C.Board TNPA2810



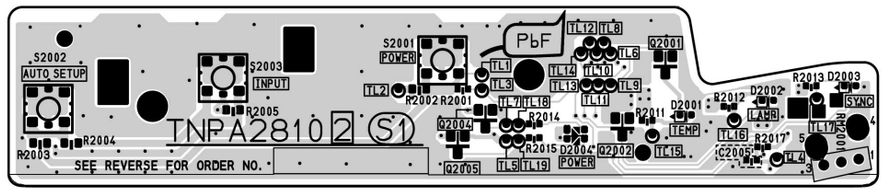
S2-P.C.Board TNPA2811



K-P.C.Board TXANP03VJT2



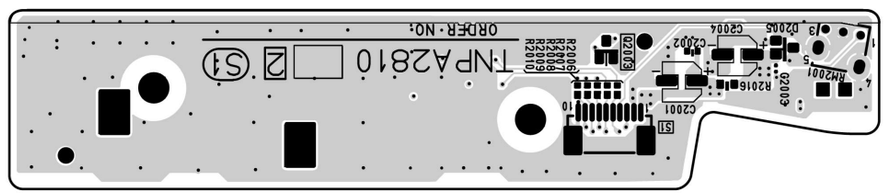
S1-P.C.Board TNPA2810
(Foil Side)



S1-P.C.Board (Foil Side)	
TRANSISTOR	
Q2001	E-3
Q2002	E-3
Q2004	E-2
Q2005	E-2

ADDRESS INFORMATION

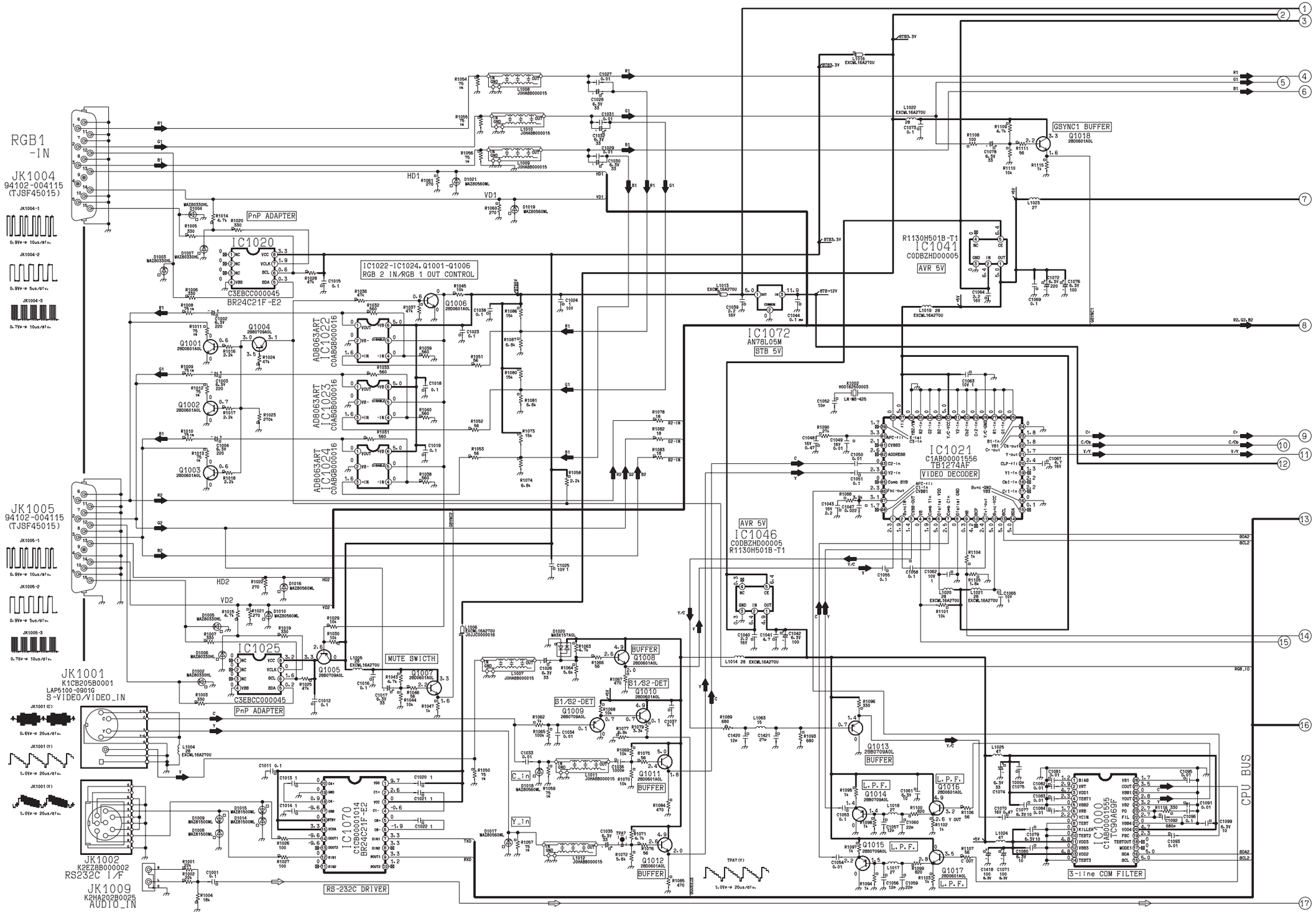
S1-P.C.Board TNPA2810
(Component Side)



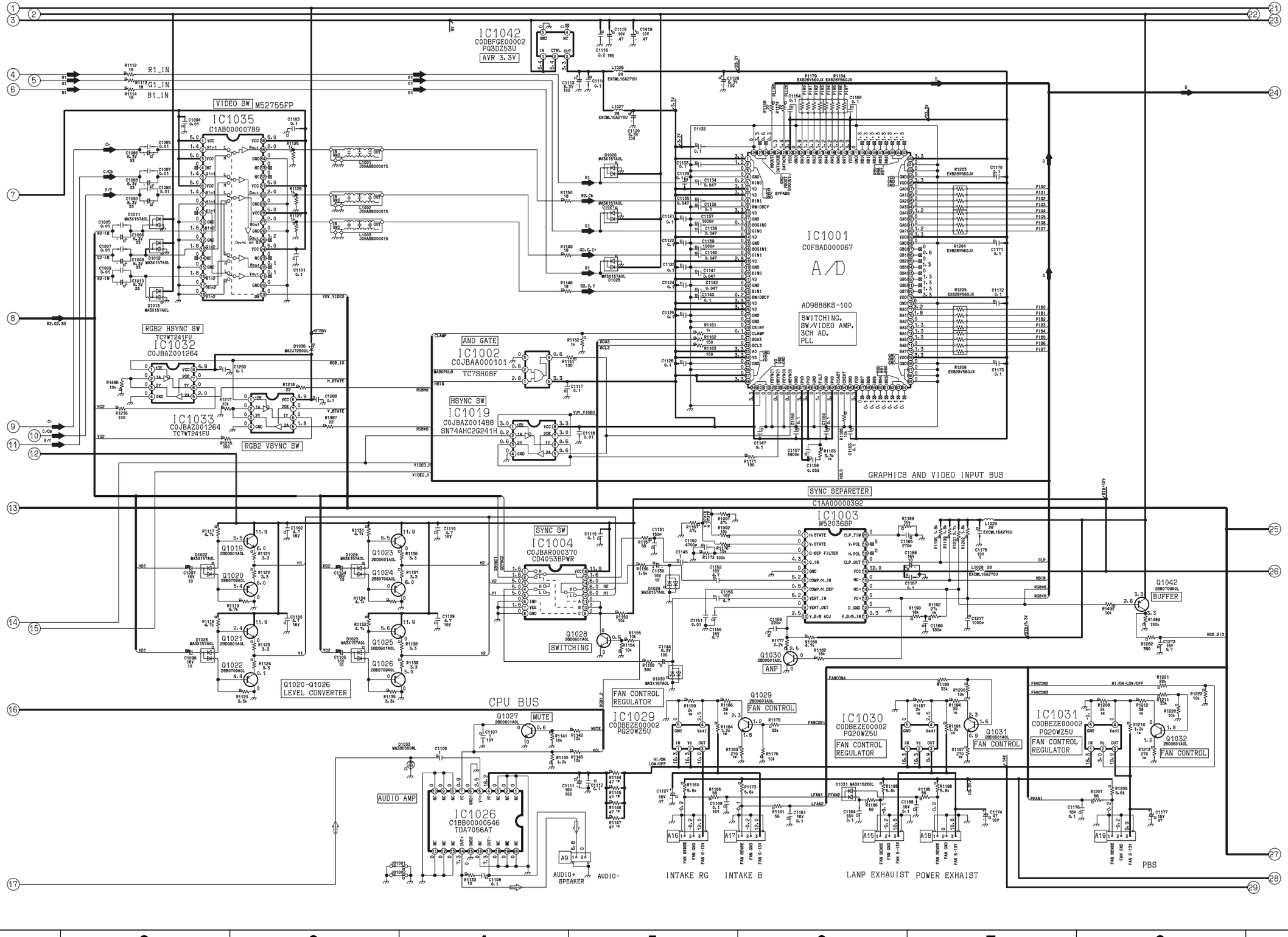
S1-P.C.Board (Component Side)	
TRANSISTOR	
Q2003	C-3

ADDRESS INFORMATION

A-P.C.Board (1/5) TXANP01VJT2 (LC76)
TXANP01VJT3 (LC56)



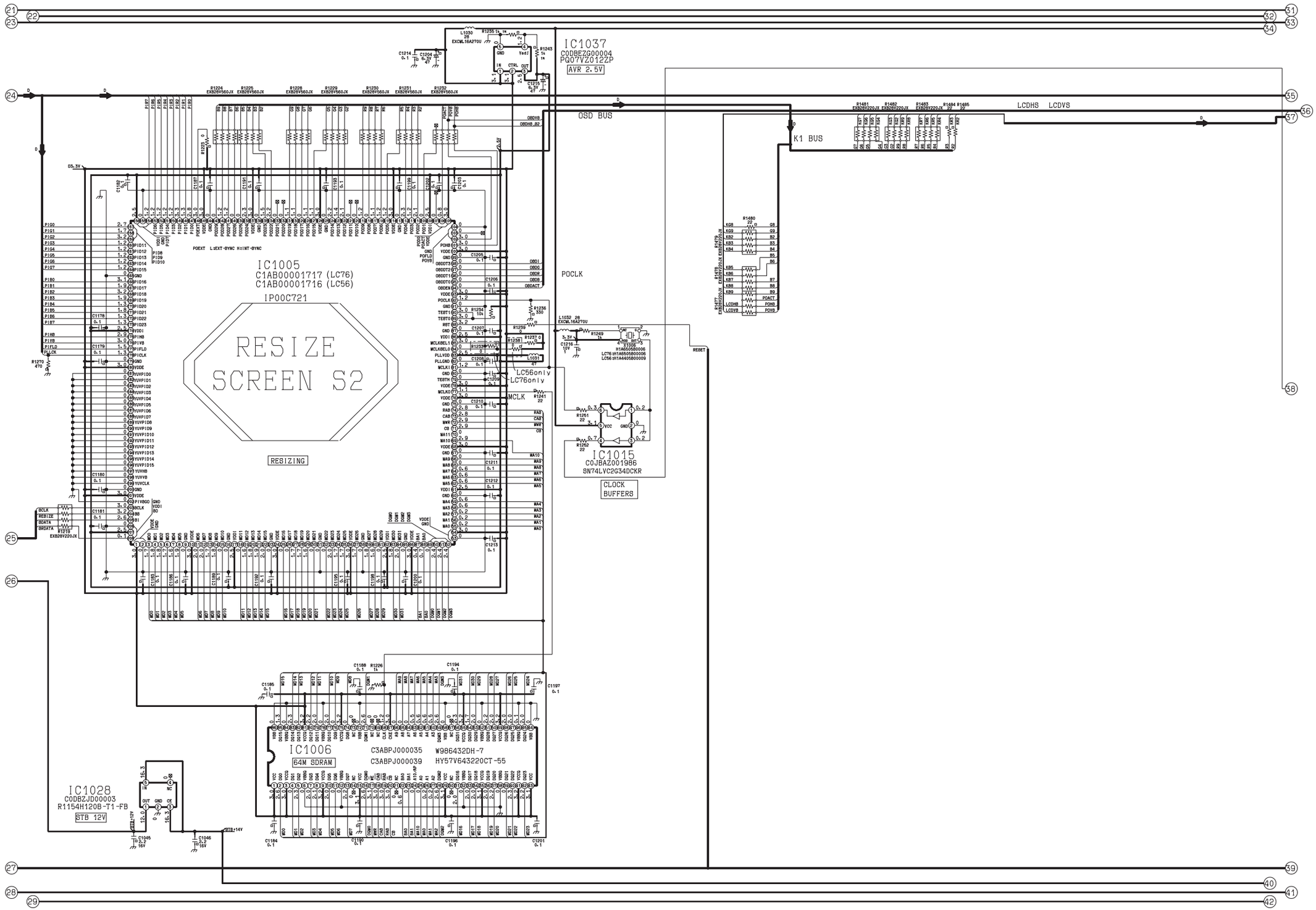
A-P.C.Board (2/5) TXANP01VJT2 (LC76)
TXANP01VJT3 (LC56)



F
E
D
C
B
A

1 2 3 4 5 6 7 8 9

A-P.C.Board (3/5) TXANP01VJT2 (LC76)
TXANP01VJT3 (LC56)



F E D C B A

1 2 3 4 5 6 7 8 9

12 Schematic Diagram

Schematic Diagram for Model PT-LC76E / LC56E

Important Safety Notice

Components identified by the international symbol ⚠ have special characteristics important for safety. When replacing any of these components, use only the manufacturer's specified ones.

Schematic Diagram for Model PT-LC76U / LC56U

IMPORTANT SAFETY NOTICE

THE SHADED AREA ON THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM FIRE AND ELECTRICAL SHOCK HAZARDS.
WHEN SERVICING, IT IS ESSENTIAL THAT ONLY MANUFACTURER'S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SHADED AREAS OF THE SCHEMATIC.

Notes:

1. **Resistor**

   All the resistors are carbon 1/4W resistors, unless marked as follows: The unit of resistance is an OHM [Ω] (K=1 000 M=1 000 000).

   ○ : Nonflammable
   △ : Solid
   ⊠ : Wire Wound
   ⊠ : Metal Oxide
   ◎ : Metal Film
   ⊗ : Fuse

2. **Capacitor**

   ⊗ : Temperature Compensation
   Ⓜ : Polyester
   ⓜ : Metalized Polyester
   ⊠ : Polypropylene
   ⧺ : Electrolytic
   NP ⧺ : Bipolar
   Ⓣ : Dipped Tantalum
   Ⓩ : Z-Type

3. **Coil**

   The unit of inductance is a H, unless otherwise noted.

4. **Test Point**

   ● : Test Point

5. **Voltage Measurement**

   The voltage is measured by an electronic voltmeter receiving the colorbar signal when all the customer's controls are set to the standard condition.

6. **Color code for the links between diagrams and circuit boards**

From/To		To/From	Color code
Block diagram	⟷	Schematic diagram	Magenta
Schematic diagram	⟷	Schematic diagram	Green

Schematic diagram	⟷	Circuit boards	Yellow
Schematic diagram	⟷	Waveforms	Cyan (Light blue)

7. **HOT and COLD indications**

   The power circuit board contains a circuit area using a separate power supply to isolate the ground connection. The circuit is defined by HOT and COLD indications in the schematic diagram. Take the precautions below:

8. **This schematic diagram is the latest at the time of printing and the subject to change without notice.**

Precautions:

1. NEVER touch the HOT part or the HOT and COLD parts at the same time, or you may get an electric shock.
2. NEVER short-circuit the HOT and COLD circuits, or the fuse may blow and the parts may break.
3. NEVER connect an instrument such oscilloscope to the HOT and COLD circuit simultaneously, or the fuse may blow. Connect the ground of instruments to the ground of the circuit being measured.
4. MAKE SURE to unplug the power cord from the power outlet before removing the chassis.

12.1 A-P.C.Board (1/5)

12.2 A-P.C.Board (2/5)

12.3 A-P.C.Board (3/5)

12.4 A-P.C.Board (4/5)

12.5 A-P.C.Board (5/5)

12.6 B-Module

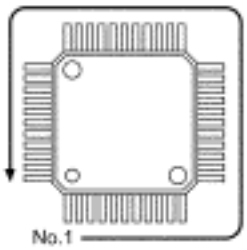
12.7 S1-P.C.Board, S2-P.C.Board, K-P.C.Board

13 Circuit Boards

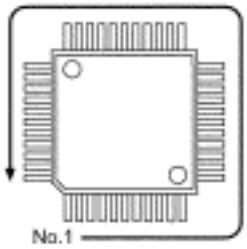
13.1 A-P.C.Board (Foil Side/Component Side)

13.2 S1-P.C.Board (Foil Side/Component Side)

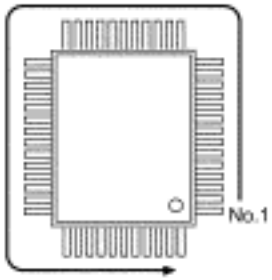
14 Terminal guide of ICs and transistors



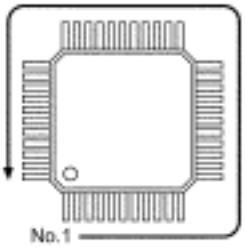
C1AB00001717 208 Pin
C1AB00001721 208 Pin



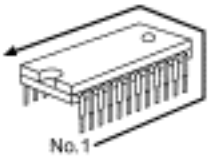
C2GBC0000135 112 Pin



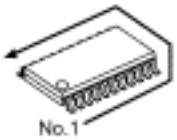
C0FBAD000067 128 Pin
C1AB00001556 48 Pin



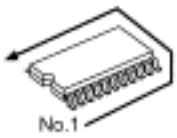
C1AB00001774 48 Pin
C1AB00001673 48 Pin



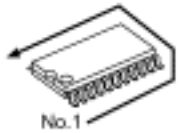
M52036SP 20 Pin
(C1AA00000392)



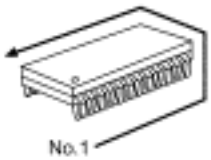
C0JBAR000370 16 Pin
C3ABPJ000035 86 Pin
C0ZBZ0000759 28 Pin
C0JBAF000315 20 Pin
C1AB00000789 36 Pin
C0FBBD000087 24 Pin
C1CB00001014 20 Pin



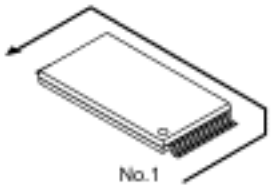
C1AB00001555 28 Pin



C1BB00000646 20 Pin



C3BBFC000127 28 Pin



TVRJ915 48 Pin
TVRJ965 48 Pin



C1GB00000062 8 Pin



C3EBCC000045 8 Pin
C3EBJC000037 8 Pin



C0JBAZ001264 8 Pin
C0JBAZ001488 8 Pin
C0EBB0000024 8 Pin



C0JBAA000101 5 Pin
C0JBAE000146 5 Pin



C0DBZHD00005 5 Pin



C0DBEZE00002 5 Pin
C0DBEZG00004 5 Pin
C0DBFGE00002 5 Pin



C0DBZJD00002 3 Pin
AN78L05M 3 Pin



C0ABGB000016 6 Pin
C0JBAZ001986 6 Pin



2SB709A
2SD601AR
2SB710A

15 Exploded Views



16 Replacement Parts List

Important Safety Notice

Components identified by the International symbol ⚠ have special characteristics important for safety.
When replacing any of these components, use only the manufacturer's specified parts.

Abbreviation of Part Name and Description

1. Resistor

Example:

ERD25TJ104 C 100KOHM, J, 1/4W

TYPE ALLOWANCE

TYPE	ALLOWANCE
C : Carbon	F : ± 1 %
F : Fuse	G : ± 2 %
M : Metal Oxide	J : ± 5 %
Metal Film	K : ±10%
S : Solid	M : ±20%
W : Wire Wound	

2. Capacitor

Example:

ECKF1H103ZF C 0.01PF, Z, 50V

TYPE ALLOWANCE

TYPE	ALLOWANCE
C : Ceramic	C : ±0.25 pF
E : Electrolytic	D : ±0.5 pF
P : Polyester	F : ± 1 pF
PP : Polypropylene	J : ± 5 %
S : Polystyrol	K : ±10 %
T : Tantalum	L : ±15 %
	M : ±20 %
	P : +100 %, -0 %
	Z : +80 %, -20 %

Notes:

For G** of Ref. No., not indicate illustration of it part on "Exploded Views".
Printed circuit board assembly with mark (RTL) is no longer available after production discontinuation of the complete set.

Ref. No.	Part No.	Part Name & Description	Remarks
[MECHANICAL PARTS]			
K1	AJ7241B	POWER SWITCH	⚠
G1	D4CDH5030001	THERMISTER	
G2	J0KG00000036	CORE	
K2	K1HA15FA0002	CABLE	
K3-1	TXFSX01PSZZ	POWER CORD	⚠LC76U, LC56U
K3-2	TXFSX01PTFZ	POWER CORD(EUROPE)	⚠LC76E, LC56E
K3-3	TXFSX02PTFZ	POWER CORD(U.K)	⚠LC76E, LC56E
K4	K2KA2FA00001	AV CABLE	
K5	L0AA04C00003	SPEAKER	
K6	L5BDAXQ00131	LIQUID CRYSTAL DISPLAY(R)	LC76U/E
	L5BDAXN00058	LIQUID CRYSTAL DISPLAY(R)	LC56U/E
K7	L5BDAXQ00132	LIQUID CRYSTAL DISPLAY(G)	LC76U/E
	L5BDAXN00059	LIQUID CRYSTAL DISPLAY(G)	LC56U/E
K8	L5BDAXQ00133	LIQUID CRYSTAL DISPLAY(B)	LC76U/E
	L5BDAXN00060	LIQUID CRYSTAL DISPLAY(B)	LC56U/E
K9	L6FAKEEH0010	VENTILATION FAN	⚠

K10	L6FCJC9H0005	FAN	⚠
K11	L6FCKEAH0001	FAN (DUCT)	⚠
K12	L6FCKEBH0002	FAN (DUCT)	⚠
K13	TBLB0043	ADJUST LEG (LEFT)	
K14	TBLB0044	ADJUST LEG (RIGHT)	
K15	TBLG3050	RUBBER LEG (REAR)	
K16	TBMA139	PANASONIC BADGE	
G3	TBMF006	MODEL NAME PLATE	LC76U
	TBMF008	MODEL NAME PLATE	LC76E
	TBMF012	MODEL NAME PLATE	LC56U
	TBMF014	MODEL NAME PLATE	LC56E
K17	TBXA38201	OPERATION BUTTON	
K18	TBXA38301	CURSOR BUTTON	
K19	TEEC5112	DUCT 1	
K20	TEEC5113	DUCT 2	
K21	TEEC5114	DUCT3	
K22	TEEC5116	LA COVER	
K23	TEEC5119	LAMP HOUSE	
K24	TEEC5120	TEMP FUSE INSTALL METAL	
K25	TENC5170-1	LCD INSTALL METAL	
G4	THEC035N	SCREW	
K26	THEC069U	SCREW	
K27	TKGF0088-1	PBS	
K28	TKGF0093	LENS	
K29	TKGP5182	POLARIZING PLATE/OUT(R)	
K30	TKGP5183	POLARIZING PLATE/OUT(G)	
K31	TKGP5184	POLARIZING PLATE/OUT(B)	
G5	TKKC5142	REMOTE RECEIVER PLATE	
K32	TKKC5167	LED PLATE	
K33	TXFKL02VJT2	LENS COVER	
K34	TKNE051	FILTER	
K35	TKPA75201	BUTTON DECORATION BOARD	
K36	TKPA75801	TERMINAL COVER	
K37	TKZF5028	TERMINAL METAL	
K38	TKZJ5045	VENTILATION FAN METAL	

G6	TKZJ5049	FAN GUARD	
G7	TMKG389	FAN SPONGE	
G8	TMKG391	VENTILATION FAN SPONGE	
G9	TMKG396	SPEAKER SPACER	
G10	TMKX100	WASHER	
K39	TMKX493-2	POWER INSULATION SHEET	
K40	TMKX494-1	BALLAST INSULATION SHEET	LC76U LC56U
	TMKX494-2	BALLAST INSULATION SHEET	LC76E LC56E
G11	TMKX496	A-PCB INSULATION SHEET	
G12	TMKX511	SHELTER SHEER	
G13	TMKX526	GUIDE PLATE	
G14	TMKX527-1	FUSE INSULATION SHEET	
G15	TMKX528-1	SW INSULATION SHEET	
G16	TMKX533	TERMINAL INSULATION SHEET	
G17	TMME154	FUSE COVER	
G18	TMMX024	CUSHION SHEET	
K41	TMXE030	BALLAST HOLDER 1	
K42	TMXE031	BALLAST HOLDER 2	
K43	TMXE032	K-PCB HOLDER	
K44	TMXE033	POWER HOLDER	
K45	TMXE034	S2-PCB HOLDER	
K46	TMZK5018	SPEAKER BOX	
K47	TMZX5034	FILTER COVER	
K48	TNQE239	REMOTE CONTROLLER	
G19	TPCB39303	CARTON	LC76U
	TPCB39305	CARTON	LC76E
	TPCB39304	CARTON	LC56U
	TPCB39306	CARTON	LC56E
G20	TPDF1041	CUSIHON	
G21	TPDF1042	ACCESSORY CARTON	
G22	TPDF1066	CUSHION 2	
G23	TPEH124	SET COVER	
G24	TPEP009	CARRING CASE	
G25	TQB817002-1	SAFETY SHEET	LC76U/E
G26	TQBH7017	SHEET (PASSWORD)	
G27	TQBJ0122	INSTRUCTION BOOK	⚠LC76U, LC76E
	TQBJ0123	INSTRUCTION BOOK	⚠LC76E, LC56E

G28	TQD1712010	PASS CARD	
G29	TQDJ18004	GUARANTEE CARD (CANADA)	LC76U, LC56U
G30	TQDJ18015-2	GUARANTEE CARD (USA)	LC76U, LC56U
G31	TQF86202	LABEL	
K49	TSEX8005	SWITCH	⚠K0ADBF000007
G32	TSXL295	FLEX CABLE	⚠
K50	TTFA0131	TERMINAL PANEL	
K51	TUCX5130	GROUND METAL	
K52	TUCX5135	GROUND METAL(A-P)	
G33	TUCX5145	ALUMINIUM SHEET	
K53	TUWC047	INTERLOCK SW INSTAL METAL	
K54	TXFKL01VJT21	LAMP COVER ASSY	
K55	TXJ/K1VJT2	TEMP FUSE WITH WIRE	⚠
G34	TXJ/L2VJT2	LAMP CONNECTOR	
K56	TXZKG02VJT2	POLARIZING PLATE/IN(R)	LC76U/E
	TXZKG02VJT3	POLARIZING PLATE/IN(R)	LC56U/E
K57	TXZKG03VJT2	POLARIZING PLATE/IN(G)	LC76U/E
	TXZKG03VJT3	POLARIZING PLATE/IN(G)	LC56U/E
K58	TXZKG04VJT2	POLARIZING PLATE/IN(B)	LC76U/E
	TXZKG04VJT3	POLARIZING PLATE/IN(B)	LC56U/E
K59	XSB3+8FN	SCREW	
K60	XSN4+10	SCREW	
K61	XSS2+6FZ	SCREW	
G35	XTBT969Z	SCREW	
G36	XTN3+6G	SCREW	
G37	XTV3+10G	SCREW	
G38	XTW3+8P	TAPPING SCREW	
G39	XYN2+F6	SCREW	
G40	XYN3+F10	SCREW	
G41	XYN3+F10FZ	SCREW	
G42	XYN3+F30FZ	SCREW	
G43	XYN3+F8	SCREW	
G44	XYN3+J8	SCREW	
K62	XYN4+J30	SCREW	
G45	XYN4+J8	SCREW	
G46	XZBT6532	POLY BAG	LC76U, LC56U
K63	TXFEC99VJT2	ANALYSIS BLOCK	LC76U/E

	TXFEC99VJT3	ANALYSIS BLOCK	LC56U/E
K64	TXFEN99VJT2	OPTICAL BLOCK	LC76U/E
	TXFEN99VJT3	OPTICAL BLOCK	LC56U/E
K65	TXFKF99PSZZ	UPPER COVER	LC76U
	TXFKF99PTFZ	UPPER COVER	LC76E
	TXFKF99PTAZ	UPPER COVER	LC56U
	TXFKF99PTGZ	UPPER COVER	LC56E
K66	TXFKF98PSZZ	BOTTOM COVER	LC76U
	TXFKF98PTFZ	BOTTOM COVER	LC76E
	TXFKF98PTAZ	BOTTOM COVER	LC56U
	TXFKF98PTGZ	BOTTOM COVER	LC56E
[INTEGRATED CIRCUIT]			
IC1000	C1AB00001555	I.C	
IC1001	C0FBAD000067	I.C	
IC1002	TC7SH08F	I.C	
IC1003	M52036SP	I.C	C1AA00000392
IC1004	C0JBAR000370	I.C	
IC1005	C1AB00001717	I.C	LC76U/E
	C1AB00001716	I.C	LC56U/E
IC1006	C3ABPJ000035	I.C	
IC1009	C0ZBZ0000759	I.C	
IC1010	C2GBC0000135	I.C	
IC1011	TVRJ915	I.C	LC76U/E
	TVRJ965	I.C	LC56U/E
IC1012	TC74LCX574FT	I.C	
IC1013	TC7SH32FTL	I.C	C0JBAE000146
IC1015	C0JBAZ001986	I.C	
IC1016	M51957BFP	I.C	C0EBB0000024
IC1017	C3EBJC000037	I.C	
IC1018	C1GB00000062	I.C	
IC1019	C0JBAZ001488	I.C	
IC1020	C3EBCC000045	I.C	
IC1021	C1AB00001556	I.C	
IC1022	C0ABGB000016	I.C	
IC1023	C0ABGB000016	I.C	
IC1024	C0ABGB000016	I.C	
IC1025	C3EBCC000045	I.C	

IC1026	C1BB00000646	I.C	
IC1027	C3BBFC000290	I.C	
IC1028	C0DBZJD00003	I.C	
IC1029	C0DBEZE00002	I.C	
IC1030	C0DBEZE00002	I.C	
IC1031	C0DBEZE00002	I.C	
IC1032	C0JBAZ001264	I.C	
IC1033	C0JBAZ001264	I.C	
IC1034	C0JBAZ000851	I.C	
IC1035	M52755FP	I.C	C1AB00000789
IC1036	C0JBAZ001986	I.C	
IC1037	C0DBEZG00004	I.C	
IC1041	C0DBZHD00005	I.C	
IC1042	C0DBFGE00002	I.C	
IC1046	C0DBZHD00005	I.C	
IC1051	C1AB00001774	I.C	
IC1052	C1AB00001774	I.C	
IC1053	C1AB00001774	I.C	
IC1057	C1AB00001673	I.C	
IC1058	C1AB00001673	I.C	
IC1059	C1AB00001673	I.C	
IC1060	M62398FP	I.C	C0FBBD000087
IC1061	C0DBZJD00003	I.C	
IC1070	C1CB00001014	I.C	
IC1072	AN78L05M	I.C	
IC1700	C1AB00001721	I.C	
IC1701	C0DBEZG00004	I.C	
IC9602	C0ZAZ0000077	I.C	
IC9603	C0ZAZ0000077	I.C	
[TRANSISTORS]			
Q1001	2SD601A-R	TRANSISTOR	2SD0601AR
Q1002	2SD601A-R	TRANSISTOR	2SD0601AR
Q1003	2SD601A-R	TRANSISTOR	2SD0601AR
Q1004	2SB709A	TRANSISTOR	2SB0709A
Q1005	2SB709A	TRANSISTOR	2SB0709A
Q1006	2SD601A-R	TRANSISTOR	2SD0601AR
Q1007	2SD601A-R	TRANSISTOR	2SD0601AR

Q1008	2SD601A-R	TRANSISTOR	2SD0601AR
Q1009	2SB709A	TRANSISTOR	2SB0709A
Q1010	2SD601A-R	TRANSISTOR	2SD0601AR
Q1011	2SD601A-R	TRANSISTOR	2SD0601AR
Q1012	2SD601A-R	TRANSISTOR	2SD0601AR
Q1013	2SB709A	TRANSISTOR	2SB0709A
Q1014	2SB709A	TRANSISTOR	2SB0709A
Q1015	2SB709A	TRANSISTOR	2SB0709A
Q1016	2SD601A-R	TRANSISTOR	2SD0601AR
Q1017	2SD601A-R	TRANSISTOR	2SD0601AR
Q1018	2SD601A-R	TRANSISTOR	2SD0601AR
Q1019	2SD601A-R	TRANSISTOR	2SD0601AR
Q1020	2SB709A	TRANSISTOR	2SB0709A
Q1021	2SD601A-R	TRANSISTOR	2SD0601AR
Q1022	2SB709A	TRANSISTOR	2SB0709A
Q1023	2SD601A-R	TRANSISTOR	2SD0601AR
Q1024	2SB709A	TRANSISTOR	2SB0709A
Q1025	2SD601A-R	TRANSISTOR	2SD0601AR
Q1026	2SB709A	TRANSISTOR	2SB0709A
Q1027	2SD601A-R	TRANSISTOR	2SD0601AR
Q1028	2SD601A-R	TRANSISTOR	2SD0601AR
Q1029	2SD601A-R	TRANSISTOR	2SD0601AR
Q1030	2SD601A-R	TRANSISTOR	2SD0601AR
Q1031	2SD601A-R	TRANSISTOR	2SD0601AR
Q1032	2SD601A-R	TRANSISTOR	2SD0601AR
Q1033	2SK620	FET	2SK0620
Q1034	2SK620	FET	2SK0620
Q1035	2SD601A-R	TRANSISTOR	2SD0601AR
Q1036	2SD601A-R	TRANSISTOR	2SD0601AR
Q1037	2SD601A-R	TRANSISTOR	2SD0601AR
Q1038	2SD601A-R	TRANSISTOR	2SD0601AR
Q1039	2SD601A-R	TRANSISTOR	2SD0601AR
Q1040	2SD601A-R	TRANSISTOR	2SD0601AR
Q1041	2SD601A-R	TRANSISTOR	2SD0601AR
Q1042	2SB709A	TRANSISTOR	2SB0709A
Q2001	2SD601A-R	TRANSISTOR	2SD0601AR
Q2002	2SD601A-R	TRANSISTOR	2SD0601AR
Q2003	2SD601A-R	TRANSISTOR	2SD0601AR
Q2004	2SB709A	TRANSISTOR	2SB0709A

Q2005	2SB709A	TRANSISTOR	2SB0709A
Q9603	B1DEGQ000017	TRANSISTOR	
Q9604	2SB710A	TRANSISTOR	
Q9605	2SB710A	TRANSISTOR	
Q9606	B1JACQ000002	TRANSISTOR	
Q9607	B1JACQ000002	TRANSISTOR	
Q9608	2SB710A	TRANSISTOR	
Q9609	2SB710A	TRANSISTOR	
Q9610	B1JACQ000002	TRANSISTOR	
Q9611	B1JACQ000002	TRANSISTOR	
Q9612	B1DEGQ000017	TRANSISTOR	
[DIODES]			
D1002	MAZ80330HL	DIODE	
D1003	MAZ80330HL	DIODE	
D1004	MAZ80330HL	DIODE	
D1005	MAZ80330HL	DIODE	
D1006	MAZ80330HL	DIODE	
D1007	MAZ80330HL	DIODE	
D1008	MA8150M	DIODE	MAZ81500M
D1009	MA8150M	DIODE	MAZ81500M
D1010	MAZ80560ML	DIODE	
D1011	MA157A	DIODE	MA3X157A
D1012	MA157A	DIODE	MA3X157A
D1013	MA157A	DIODE	MA3X157A
D1014	MA8150M	DIODE	MAZ81500M
D1015	MA8150M	DIODE	MAZ81500M
D1016	MAZ80560ML	DIODE	
D1017	MAZ80560ML	DIODE	
D1018	MAZ80560ML	DIODE	
D1019	MAZ80560ML	DIODE	
D1020	MA157A	DIODE	MA3X157A
D1021	MAZ80560ML	DIODE	
D1022	MA157A	DIODE	MA3X157A
D1023	MA157A	DIODE	MA3X157A
D1024	MA157A	DIODE	MA3X157A
D1025	MA157A	DIODE	MA3X157A
D1026	MA157A	DIODE	MA3X157A

D1027	MA157A	DIODE	MA3X157A
D1028	MA157A	DIODE	MA3X157A
D1029	MA157A	DIODE	MA3X157A
D1030	MA157A	DIODE	MA3X157A
D1031	MA152WK	DIODE	MA3X152E
D1032	LNJ208R8ARA	LED	
D1035	MA721	DIODE	MA3X721
D1036	MA2J72800L	DIODE	
D2001	LNJ208R8ARA	LED	
D2002	LNJ208R8ARA	LED	
D2003	LNJ308G8TRA	LED	
D2004	LNJ107W5ARA1	LED	
D2005	MA157A	DIODE	MA3X157A
D3001	MA157A	DIODE	MA3X157A
D9601	B0HARR000007	DIODE	
D9604	MA158	DIODE	
D9605	MA720	DIODE	
D9606	MA158	DIODE	
D9607	MA720	DIODE	
D9608	MA158	DIODE	
D9609	MA720	DIODE	
D9611	MA158	DIODE	
D9612	MA720	DIODE	
D9613	ES01F	DIODE	
D9614	ES01F	DIODE	
[COILS]			
L1001	J0HABB000015	FILTER	
L1002	J0HABB000015	FILTER	
L1003	J0HABB000015	FILTER	
L1004	ERJ3GEY0R00	M 0 OHM, 1/16W	
L1005	EXCML16A270	COIL	
L1006	EXCML16A270	COIL	
L1007	J0HABB000015	FILTER	
L1008	J0HABB000015	FILTER	
L1009	J0HABB000015	FILTER	
L1010	J0HABB000015	FILTER	
L1011	J0HABB000015	FILTER	

L1012	J0HABB000015	FILTER	
L1013	EXCML16A270	COIL	
L1014	EXCML16A270	COIL	
L1016	EXCML16A270	COIL	
L1017	ELJFA270JF	COIL	
L1018	ELJFA270JF	COIL	
L1019	EXCML16A270	COIL	
L1020	EXCML16A270	COIL	
L1021	EXCML16A270	COIL	
L1022	EXCML16A270	COIL	
L1023	EXCML16A270	COIL	
L1024	ELJFA470JF	COIL	
L1025	ELJFA470JF	COIL	
L1026	EXCML16A270	COIL	
L1027	EXCML16A270	COIL	
L1028	EXCML16A270	COIL	
L1029	EXCML16A270	COIL	
L1030	EXCML16A270	COIL	
L1031	ELJFA470JF	COIL	
L1032	EXCML16A270	COIL	
L1036	ELJFA6R8JB	CHIP COIL	
L1037	ELJFA470JF	COIL	
L1038	EXCML16A270	COIL	
L1039	EXCML16A270	COIL	
L1040	EXCML16A270	COIL	
L1042	EXCML16A270	COIL	
L1043	EXCML16A270	COIL	
L1044	EXCML16A270	COIL	
L1045	EXCML16A270	COIL	
L1046	EXCML16A270	COIL	
L1047	EXCML16A270	COIL	
L1048	EXCML16A270	COIL	
L1049	EXCML16A270	COIL	
L1050	EXCML16A270	COIL	
L1051	EXCML16A270	COIL	
L1052	EXCML16A270	COIL	
L1053	EXCML16A270	COIL	
L1054	EXCML16A270	COIL	
L1055	EXCML16A270	COIL	

L1056	EXCML16A270	COIL	
L1057	EXCML16A270	COIL	
L1058	EXCML16A270	COIL	
L1060	EXCML16A270	COIL	
L1061	EXCML16A270	COIL	
L1062	EXCML16A270	COIL	
L1063	ELJFA150JF	COIL	
[RESISTORS]			
R1001	ERJ3GEYJ223	M 22K OHM,J,1/16W	
R1002	ERJ3GEYJ223	M 22K OHM,J,1/16W	
R1003	ERJ2GEJ331	M 330 OHM, 0.063W	
R1004	ERJ3GEYJ183	M 18K OHM,J,1/16W	
R1005	ERJ2GEJ331	M 330 OHM, 0.063W	
R1006	ERJ2GEJ331	M 330 OHM, 0.063W	
R1007	ERJ2GEJ331	M 330 OHM, 0.063W	
R1008	ERJ6ENF75R0	M 75 OHM, 1/10W	
R1009	ERJ6ENF75R0	M 75 OHM, 1/10W	
R1010	ERJ6ENF75R0	M 75 OHM, 1/10W	
R1011	ERJ6ENF75R0	M 75 OHM, 1/10W	
R1012	ERJ6ENF75R0	M 75 OHM, 1/10W	
R1013	ERJ6ENF75R0	M 75 OHM, 1/10W	
R1014	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1015	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1016	ERJ3GEYJ222	M 2.2KOHM,J,1/16W	
R1017	ERJ3GEYJ222	M 2.2KOHM,J,1/16W	
R1018	ERJ3GEYJ222	M 2.2KOHM,J,1/16W	
R1019	ERJ2GEJ331	M 330 OHM, 0.063W	
R1020	ERJ2GEJ331	M 330 OHM, 0.063W	
R1021	ERJ6GEYJ271	M 270 OHM,J,1/10W	
R1022	ERJ6GEYJ271	M 270 OHM,J,1/10W	
R1023	ERJ2GEJ274	M 270KOHM, 0.063W	
R1024	ERJ3GEYJ473	M 47K OHM,J,1/16W	
R1025	ERJ2GEJ473	M 47K OHM, 0.063W	
R1026	ERJ3GEYJ101	M 100 OHM,J,1/16W	D0GB101JA002
R1027	ERJ3GEYJ101	M 100 OHM,J,1/16W	D0GB101JA002
R1028	ERJ2GEJ473	M 47K OHM, 0.063W	
R1029	ERJ2GEJ103	M 10K OHM, 0.063W	

R1030	ERJ2GEJ103	M 10K OHM, 0.063W	
R1031	ERJ3GEYJ561	M 560 OHM,J,1/16W	
R1032	ERJ3GEYJ561	M 560 OHM,J,1/16W	
R1033	ERJ3GEYJ561	M 560 OHM,J,1/16W	
R1034	ERJ2GEJ220	M 22 OHM, 0.063W	
R1035	ERJ2GEJ220	M 22 OHM, 0.063W	
R1036	ERJ2GEJ473	M 47K OHM, 0.063W	
R1037	ERJ3GEYJ473	M 47K OHM,J,1/16W	
R1038	ERJ3GEYJ561	M 560 OHM,J,1/16W	
R1039	ERJ3GEYJ561	M 560 OHM,J,1/16W	
R1040	ERJ3GEYJ561	M 560 OHM,J,1/16W	
R1041	ERJ2GEJ220	M 22 OHM, 0.063W	
R1043	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1044	ERJ3GEYJ103	M 10K OHM,J,1/16W	
R1045	ERJ2GEJ103	M 10K OHM, 0.063W	
R1046	ERJ2GEJ560	M 56 OHM, 0.063W	
R1047	ERJ2GEJ102	M 1K OHM, 0.063W	
R1050	ERJ6ENF75R0	M 75 OHM, 1/10W	
R1051	ERJ2GEJ560	M 56 OHM, 0.063W	
R1052	ERJ2GEJ560	M 56 OHM, 0.063W	
R1053	ERJ2GEJ560	M 56 OHM, 0.063W	
R1054	ERJ6ENF75R0	M 75 OHM, 1/10W	
R1055	ERJ6ENF75R0	M 75 OHM, 1/10W	
R1056	ERJ6ENF75R0	M 75 OHM, 1/10W	
R1057	ERJ6ENF75R0	M 75 OHM, 1/10W	
R1058	ERJ3GEYJ222	M 2.2KOHM,J,1/16W	
R1059	ERJ6ENF75R0	M 75 OHM, 1/10W	
R1060	ERJ6GEYJ271	M 270 OHM,J,1/10W	
R1061	ERJ6GEYJ271	M 270 OHM,J,1/10W	
R1062	ERJ2GEJ102	M 1K OHM, 0.063W	
R1063	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1064	ERJ2GEJ562	M 5.6KOHM, 0.063W	
R1065	ERJ2GEJ104	M 100KOHM, 0.063W	
R1066	ERJ2GEJ560	M 56 OHM, 0.063W	
R1067	ERJ3GEYJ471	M 470 OHM,J,1/16W	
R1068	ERJ2GEJ103	M 10K OHM, 0.063W	
R1069	ERJ2GEJ103	M 10K OHM, 0.063W	
R1070	ERJ2GEJ103	M 10K OHM, 0.063W	
R1071	ERJ2GEJ472	M 4.7KOHM, 0.063W	

R1072	ERJ2GEJ562	M 5.6KOHM, 0.063W	
R1073	ERJ3GEYJ153	M 15K OHM,J,1/16W	
R1074	ERJ3GEYJ682	M 6.8KOHM,J,1/16W	
R1075	ERJ2GEJ560	M 56 OHM, 0.063W	
R1076	ERJ2GEJ560	M 56 OHM, 0.063W	
R1077	ERJ3GEYJ682	M 6.8KOHM,J,1/16W	
R1078	ERJ3GEYJ180	M 18 OHM,J,1/16W	
R1079	ERJ3GEYJ332	M 3.3KOHM,J,1/16W	
R1080	ERJ3GEYJ153	M 15K OHM,J,1/16W	
R1081	ERJ3GEYJ682	M 6.8KOHM,J,1/16W	
R1082	ERJ3GEYJ180	M 18 OHM,J,1/16W	
R1083	ERJ3GEYJ180	M 18 OHM,J,1/16W	
R1084	ERJ3GEYJ471	M 470 OHM,J,1/16W	
R1085	ERJ3GEYJ471	M 470 OHM,J,1/16W	
R1086	ERJ3GEYJ153	M 15K OHM,J,1/16W	
R1087	ERJ3GEYJ682	M 6.8KOHM,J,1/16W	
R1088	ERJ2GEJ392	M 3.9KOHM, 0.063W	
R1089	ERJ3GEYJ681	M 680 OHM,J,1/16W	
R1090	ERJ2GEJ273	M 27K OHM, 0.063W	
R1091	ERJ3GEYJ473	M 47K OHM,J,1/16W	
R1092	ERJ3GEYJ103	M 10K OHM,J,1/16W	
R1093	ERJ3GEYJ681	M 680 OHM,J,1/16W	
R1094	ERJ3GEYJ102	M 1K OHM,J,1/16W	
R1095	ERJ2GEJ102	M 1K OHM, 0.063W	
R1096	ERJ3GEYJ331	M 330 OHM,J,1/16W	
R1097	ERJ2GEJ102	M 1K OHM, 0.063W	
R1098	ERJ3GEYJ102	M 1K OHM,J,1/16W	
R1099	ERJ2GEJ821	M 820 OHM, 0.063W	
R1100	ERJ2GEJ821	M 820 OHM, 0.063W	
R1101	ERJ2GEJ103	M 10K OHM, 0.063W	
R1102	ERJ2GEJ102	M 1K OHM, 0.063W	
R1103	ERJ2GEJ102	M 1K OHM, 0.063W	
R1104	ERJ3GEYJ102	M 1K OHM,J,1/16W	
R1105	ERJ3GEYJ182	M 1.8KOHM,J,1/16W	
R1106	ERJ2GEJ560	M 56 OHM, 0.063W	
R1107	ERJ2GEJ560	M 56 OHM, 0.063W	
R1108	ERJ3GEYJ101	M 100 OHM,J,1/16W	D0GB101JA002
R1109	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1110	ERJ3GEYJ103	M 10K OHM,J,1/16W	

R1111	ERJ2GEJ560	M 56 OHM, 0.063W	
R1112	ERJ2GEJ180	M 18 OHM, 0.063W	
R1113	ERJ2GEJ180	M 18 OHM, 0.063W	
R1114	ERJ2GEJ180	M 18 OHM, 0.063W	
R1115	ERJ2GEJ102	M 1K OHM, 0.063W	
R1116	ERJ2GEJ331	M 330 OHM, 0.063W	
R1117	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1118	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1119	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1120	ERJ2GEJ332	M 3.3KOHM, 0.063W	
R1121	ERJ6GEYJ3R3	M 3.3 OHM,J,1/10W	
R1122	ERJ6GEYJ3R3	M 3.3 OHM,J,1/10W	
R1123	ERJ6GEYJ3R3	M 3.3 OHM,J,1/10W	
R1124	ERJ6GEYJ3R3	M 3.3 OHM,J,1/10W	
R1125	ERJ2GEJ102	M 1K OHM, 0.063W	
R1126	ERJ2GEJ102	M 1K OHM, 0.063W	
R1127	ERJ2GEJ102	M 1K OHM, 0.063W	
R1131	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1132	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1133	ERJ2GEJ100	M 10 OHM, 0.063W	
R1134	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1135	ERJ2GEJ332	M 3.3KOHM, 0.063W	
R1136	ERJ6GEYJ3R3	M 3.3 OHM,J,1/10W	
R1137	ERJ6GEYJ3R3	M 3.3 OHM,J,1/10W	
R1138	ERJ6GEYJ3R3	M 3.3 OHM,J,1/10W	
R1139	ERJ6GEYJ3R3	M 3.3 OHM,J,1/10W	
R1140	ERJ3GEYJ122	M 1.2KOHM,J,1/16W	
R1141	ERJ2GEJ103	M 10K OHM, 0.063W	
R1142	ERJ2GEJ103	M 10K OHM, 0.063W	
R1143	ERJ3GEYJ103	M 10K OHM,J,1/16W	
R1144	ERJ1TYJ470	M 47 OHM, J, 1W	
R1145	ERJ1TYJ470	M 47 OHM, J, 1W	
R1146	ERJ1TYJ470	M 47 OHM, J, 1W	
R1147	ERJ1TYJ470	M 47 OHM, J, 1W	
R1148	ERJ3GEYJ180	M 18 OHM,J,1/16W	
R1149	ERJ3GEYJ180	M 18 OHM,J,1/16W	
R1150	ERJ3GEYJ180	M 18 OHM,J,1/16W	
R1151	ERJ2GEJ101	M 100 OHM, 0.063W	
R1152	ERJ3GEYJ102	M 1K OHM,J,1/16W	

R1153	ERJ3GEYJ103	M 10K OHM,J,1/16W	
R1154	ERJ3GEYJ103	M 10K OHM,J,1/16W	
R1155	ERJ3GEYJ103	M 10K OHM,J,1/16W	
R1156	ERJ3GEYJ152	M 1.5KOHM,J,1/16W	
R1157	ERJ2GEJ560	M 56 OHM, 0.063W	
R1158	ERJ3GEYJ391	M 390 OHM,J,1/16W	D0GB391JA002
R1159	ERJ6ENF2001	M 2KOHM, 1/10W	
R1160	ERJ2GEJ562	M 5.6KOHM, 0.063W	
R1161	ERJ2GEJ102	M 1K OHM, 0.063W	
R1162	ERJ3GEYJ151	M 150 OHM,J,1/16W	
R1163	ERJ3GEYJ151	M 150 OHM,J,1/16W	
R1164	ERJ8ENF1201	M 1.2KOHM, 1/8W	
R1165	ERJ3GEYJ560	M 56 OHM,J,1/16W	
R1166	ERJ6ENF39R0	M 39 OHM, 1/10W	
R1167	ERJ3GEYJ473	M 47K OHM,J,1/16W	
R1168	ERJ2GEJ220	M 22 OHM, 0.063W	
R1169	ERJ6ENF2700	M 270 OHM, 1/10W	
R1171	ERJ2GEJ101	M 100 OHM, 0.063W	
R1172	ERJ2GEJ104	M 100KOHM, 0.063W	
R1173	ERJ2GEJ562	M 5.6KOHM, 0.063W	
R1174	ERJ2GEJ220	M 22 OHM, 0.063W	
R1175	ERJ2GEJ103	M 10K OHM, 0.063W	
R1176	ERJ3GEYJ103	M 10K OHM,J,1/16W	
R1177	ERJ2GEJ222	M 2.2KOHM, 0.063W	
R1178	ERJ2GEJ333	M 33K OHM, 0.063W	
R1179	EXB28V560J	RESISTOR ARRAY	
R1180	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1181	ERJ3GEYJ560	M 56 OHM,J,1/16W	
R1182	ERJ2GEJ183	M 18K OHM, 0.063W	
R1183	ERJ6ENF3301	M 3.3KOHM, 1/10W	
R1184	EXB28V560J	RESISTOR ARRAY	
R1185	ERJ3GEYJ103	M 10K OHM,J,1/16W	
R1186	ERJ3GEYJ560	M 56 OHM,J,1/16W	
R1187	ERJ6ENF2001	M 2KOHM, 1/10W	
R1188	ERJ2GEJ562	M 5.6KOHM, 0.063W	
R1189	ERJ2GEJ103	M 10K OHM, 0.063W	
R1190	ERJ2GEJ183	M 18K OHM, 0.063W	
R1191	ERJ8ENF1201	M 1.2KOHM, 1/8W	
R1192	ERJ6ENF2702	M 27KOHM, 1/10W	

R1193	ERJ2GEJ333	M 33K OHM, 0.063W	
R1194	ERJ6ENF39R0	M 39 OHM, 1/10W	
R1195	ERJ3GEYJ560	M 56 OHM,J,1/16W	
R1196	ERJ2GEJ182	M 1.8KOHM, 0.063W	
R1197	ERJ6ENF2700	M 270 OHM, 1/10W	
R1198	ERJ2GEJ562	M 5.6KOHM, 0.063W	
R1199	ERJ2GEJ182	M 1.8KOHM, 0.063W	
R1200	ERJ2GEJ103	M 10K OHM, 0.063W	
R1201	ERJ2GEJ272	M 2.7KOHM, 0.063W	
R1202	ERJ2GEJ182	M 1.8KOHM, 0.063W	
R1203	EXB28V560J	RESISTOR ARRAY	
R1204	EXB28V560J	RESISTOR ARRAY	
R1205	EXB28V560J	RESISTOR ARRAY	
R1206	EXB28V560J	RESISTOR ARRAY	
R1207	ERJ3GEYJ560	M 56 OHM,J,1/16W	
R1208	ERJ6ENF2001	M 2KOHM, 1/10W	
R1209	ERJ2GEJ562	M 5.6KOHM, 0.063W	
R1210	ERJ8ENF1201	M 1.2KOHM, 1/8W	
R1211	ERJ2GEJ333	M 33K OHM, 0.063W	
R1212	ERJ6ENF39R0	M 39 OHM, 1/10W	
R1213	ERJ6ENF2700	M 270 OHM, 1/10W	
R1214	ERJ6ENF1203	M 120KOHM, 1/10W	
R1215	ERJ2GEJ101	M 100 OHM, 0.063W	
R1216	ERJ2GEJ101	M 100 OHM, 0.063W	
R1217	ERJ2GEJ103	M 10K OHM, 0.063W	
R1218	ERJ3GEYJ220	M 22 OHM,J,1/16W	
R1219	EXB28V220J	RESISTOR ARRAY	
R1220	ERJ2GEJ103	M 10K OHM, 0.063W	
R1221	ERJ3GEYJ223	M 22K OHM,J,1/16W	
R1222	ERJ2GEJ103	M 10K OHM, 0.063W	
R1223	ERJ3GEY0R00	M 0 OHM, 1/16W	
R1224	EXB28V560J	RESISTOR ARRAY	
R1225	EXB28V560J	RESISTOR ARRAY	
R1226	ERJ3GEYJ102	M 1K OHM,J,1/16W	
R1228	EXB28V560J	RESISTOR ARRAY	
R1229	EXB28V560J	RESISTOR ARRAY	
R1230	EXB28V560J	RESISTOR ARRAY	
R1231	EXB28V560J	RESISTOR ARRAY	
R1232	EXB28V560J	RESISTOR ARRAY	

R1233	ERJ3GEY0R00	M 0 OHM, 1/16W	LC76U/E
R1234	ERJ2GEJ103	M 10K OHM, 0.063W	
R1235	ERJ6ENF1001	M 1KOHM, 1/10W	
R1236	ERJ3GEYJ331	M 330 OHM,J,1/16W	
R1237	ERJ3GEY0R00	M 0 OHM, 1/16W	
R1238	ERJ3GEY0R00	M 0 OHM, 1/16W	LC56U/E
R1239	ERJ3GEY0R00	M 0 OHM, 1/16W	
R1241	ERJ2GEJ220	M 22 OHM, 0.063W	
R1243	ERJ6ENF1001	M 1KOHM, 1/10W	
R1249	ERJ3GEYJ102	M 1K OHM,J,1/16W	
R1250	ERJ3GEY0R00	M 0 OHM, 1/16W	
R1251	ERJ2GEJ560	M 56 OHM, 0.063W	
R1252	ERJ2GEJ560	M 56 OHM, 0.063W	
R1268	ERJ3GEYJ301	M 300 OHM,J,1/16W	
R1270	ERJ2GEJ471	M 470 OHM, 0.063W	
R1271	ERJ6ENF1203	M 120KOHM, 1/10W	
R1282	ERJ3GEYJ391	M 390 OHM,J,1/16W	D0GB391JA002
R1287	ERJ3GEYJ103	M 10K OHM,J,1/16W	
R1288	ERJ2GEJ822	M 8.2KOHM, 0.063W	
R1289	ERJ2GEJ473	M 47K OHM, 0.063W	
R1291	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1292	ERJ2GEJ272	M 2.7KOHM, 0.063W	
R1294	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1296	ERJ2GEJ103	M 10K OHM, 0.063W	
R1299	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1300	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1301	ERJ3GEY0R00	M 0 OHM, 1/16W	
R1302	ERJ2GEJ221	M 220 OHM, 0.063W	
R1303	ERJ2GEJ272	M 2.7KOHM, 0.063W	
R1304	ERJ3GEYJ220	M 22 OHM,J,1/16W	
R1305	ERJ3GEYJ220	M 22 OHM,J,1/16W	
R1307	ERJ2GEJ103	M 10K OHM, 0.063W	
R1308	ERJ2GE0R00	M 0 OHM, 0.063W	
R1309	EXB28V103J	RESISTOR ARRAY	
R1310	EXB28V103J	RESISTOR ARRAY	
R1311	ERJ2GEJ220	M 22 OHM, 0.063W	
R1312	EXB28V103J	RESISTOR ARRAY	
R1313	EXB28V220J	RESISTOR ARRAY	
R1314	ERJ3GEYJ220	M 22 OHM,J,1/16W	

R1315	ERJ3GEY0R00	M 0 OHM, 1/16W	
R1316	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	
R1317	ERJ6ENF1001	M 1KOHM, 1/10W	
R1318	EXB28V103J	RESISTOR ARRAY	
R1319	ERJ2GE0R00	M 0 OHM, 0.063W	
R1320	ERJ2GEJ103	M 10K OHM, 0.063W	
R1321	EXB28V103J	RESISTOR ARRAY	
R1322	ERJ6ENF1001	M 1KOHM, 1/10W	
R1323	ERJ2GE0R00	M 0 OHM, 0.063W	
R1324	ERJ3GEYJ220	M 22 OHM,J,1/16W	
R1325	ERJ3GEYJ220	M 22 OHM,J,1/16W	
R1326	ERJ3GEYJ102	M 1K OHM,J,1/16W	
R1327	ERJ2GEJ103	M 10K OHM, 0.063W	
R1328	ERJ3GEYJ682	M 6.8KOHM,J,1/16W	
R1329	ERJ2GEJ101	M 100 OHM, 0.063W	
R1330	ERJ2GEJ103	M 10K OHM, 0.063W	
R1331	EXB28V220J	RESISTOR ARRAY	
R1332	EXB28V220J	RESISTOR ARRAY	
R1333	ERJ3GEYJ220	M 22 OHM,J,1/16W	
R1334	EXB28V220J	RESISTOR ARRAY	
R1335	EXB28V220J	RESISTOR ARRAY	
R1337	ERJ2GE0R00	M 0 OHM, 0.063W	LC76U/E
R1338	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	
R1339	ERJ2GEJ562	M 5.6KOHM, 0.063W	
R1340	ERJ2GEJ103	M 10K OHM, 0.063W	
R1341	ERJ6GEYJ560	M 56 OHM,J,1/10W	
R1343	ERJ2GEJ562	M 5.6KOHM, 0.063W	
R1344	EXB28V220J	RESISTOR ARRAY	
R1345	ERJ2GEJ103	M 10K OHM, 0.063W	
R1346	ERJ6GEYJ560	M 56 OHM,J,1/10W	
R1347	EXB28V220J	RESISTOR ARRAY	
R1348	ERJ2GEJ562	M 5.6KOHM, 0.063W	
R1349	EXB28V220J	RESISTOR ARRAY	
R1350	ERJ6GEYJ560	M 56 OHM,J,1/10W	
R1351	ERJ6ENF2202	M 2.2KOHM, 1/10W	
R1352	ERJ3GEY0R00	M 0 OHM, 1/16W	
R1353	ERJ3GEYJ471	M 470 OHM,J,1/16W	
R1354	ERJ2GEJ102	M 1K OHM, 0.063W	
R1355	ERJ3GEYJ220	M 22 OHM,J,1/16W	

R1356	ERJ3GEYJ220	M 22 OHM,J,1/16W	
R1357	EXB28V220J	RESISTOR ARRAY	
R1358	ERJ2GE0R00	M 0 OHM, 0.063W	
R1359	ERJ2GE0R00	M 0 OHM, 0.063W	
R1360	ERJ2GEJ102	M 1K OHM, 0.063W	
R1361	ERJ3GEYJ331	M 330 OHM,J,1/16W	
R1362	ERJ6ENF2202	M 2.2KOHM, 1/10W	
R1363	ERJ3GEYJ560	M 56 OHM,J,1/16W	
R1364	ERJ2GE0R00	M 0 OHM, 0.063W	
R1365	EXB28V220J	RESISTOR ARRAY	
R1366	ERJ3GEYJ331	M 330 OHM,J,1/16W	
R1367	EXB28V220J	RESISTOR ARRAY	
R1368	EXB28V102J	RESISTOR ARRAY	
R1369	EXB28V102J	RESISTOR ARRAY	
R1370	EXB28V220J	RESISTOR ARRAY	
R1371	EXB28V220J	RESISTOR ARRAY	
R1372	ERJ2GEJ101	M 100 OHM, 0.063W	
R1373	EXB28V220J	RESISTOR ARRAY	
R1374	EXB28V220J	RESISTOR ARRAY	
R1375	ERJ2GEJ102	M 1K OHM, 0.063W	
R1376	ERJ2GEJ103	M 10K OHM, 0.063W	
R1377	EXB28V220J	RESISTOR ARRAY	
R1378	EXB28V220J	RESISTOR ARRAY	
R1379	EXB28V220J	RESISTOR ARRAY	
R1380	ERJ3GEYJ220	M 22 OHM,J,1/16W	
R1381	ERJ3GEYJ220	M 22 OHM,J,1/16W	
R1382	EXB28V220J	RESISTOR ARRAY	
R1383	EXB28V220J	RESISTOR ARRAY	
R1384	EXB28V220J	RESISTOR ARRAY	
R1385	EXB28V220J	RESISTOR ARRAY	
R1386	ERJ3GEYJ560	M 56 OHM,J,1/16W	
R1387	ERJ3GEYJ560	M 56 OHM,J,1/16W	
R1388	ERJ2GEJ562	M 5.6KOHM, 0.063W	
R1389	ERJ2GEJ102	M 1K OHM, 0.063W	
R1390	ERJ2GEJ103	M 10K OHM, 0.063W	
R1391	ERJ2GE0R00	M 0 OHM, 0.063W	
R1392	ERJ2GEJ562	M 5.6KOHM, 0.063W	
R1393	ERJ2GE0R00	M 0 OHM, 0.063W	LC56U/E
R1394	ERJ2GEJ472	M 4.7KOHM, 0.063W	

R1395	ERJ2GEJ101	M 100 OHM, 0.063W	
R1396	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1397	ERJ2GEJ472	M 4.7KOHM, 0.063W	
R1400	ERJ2GEJ101	M 100 OHM, 0.063W	
R1419	ERJ3GEYJ331	M 330 OHM,J,1/16W	
R1420	ERJ3GEYJ331	M 330 OHM,J,1/16W	
R1421	ERJ3GEYJ331	M 330 OHM,J,1/16W	
R1458	ERJ2GEJ220	M 22 OHM, 0.063W	
R1459	ERJ2GEJ220	M 22 OHM, 0.063W	
R1460	ERJ2GEJ220	M 22 OHM, 0.063W	
R1463	ERJ2GEJ473	M 47K OHM, 0.063W	
R1465	ERJ2GEJ473	M 47K OHM, 0.063W	
R1466	ERJ2GEJ473	M 47K OHM, 0.063W	
R1473	ERJ2GEJ333	M 33K OHM, 0.063W	
R1474	ERJ2GEJ333	M 33K OHM, 0.063W	
R1477	EXB28V220J	RESISTOR ARRAY	
R1478	EXB28V220J	RESISTOR ARRAY	
R1479	EXB28V220J	RESISTOR ARRAY	
R1480	ERJ3GEYJ220	M 22 OHM,J,1/16W	
R1481	EXB28V220J	RESISTOR ARRAY	
R1482	EXB28V220J	RESISTOR ARRAY	
R1483	EXB28V220J	RESISTOR ARRAY	
R1484	ERJ3GEYJ220	M 22 OHM,J,1/16W	
R1485	ERJ3GEYJ220	M 22 OHM,J,1/16W	
R1486	ERJ2GEJ103	M 10K OHM, 0.063W	
R1487	ERJ2GEJ220	M 22 OHM, 0.063W	
R1488	ERJ2GEJ101	M 100 OHM, 0.063W	
R1489	ERJ3GEYJ104	M 100KOHM,J,1/16W	
R1490	ERJ3GEYJ103	M 10K OHM,J,1/16W	
R1491	EXB28V104J	RESISTOR ARRAY	
R1492	EXB28V104J	RESISTOR ARRAY	
R1493	EXB28V104J	RESISTOR ARRAY	
R1494	ERJ2GEJ103	M 10K OHM, 0.063W	
R1495	EXB28V220J	RESISTOR ARRAY	
R1499	ERJ6ENF1004	M1000KOHM, 1/10W	
R2001	ERJ3GEYJ100	M 10 OHM,J,1/16W	
R2002	ERJ6ENF5601	M 5.6KOHM, 1/10W	
R2003	ERJ6ENF2201	M 2.2KOHM, 1/10W	
R2004	ERJ6ENF6801	M 6.8KOHM, 1/10W	

R2005	ERJ6ENF3302	M 33KOHM, 1/10W	
R2006	ERJ3GEYJ101	M 100 OHM,J,1/16W	D0GB101JA002
R2007	ERJ3GEYJ101	M 100 OHM,J,1/16W	D0GB101JA002
R2008	ERJ3GEYJ101	M 100 OHM,J,1/16W	D0GB101JA002
R2009	ERJ3GEYJ101	M 100 OHM,J,1/16W	D0GB101JA002
R2010	ERJ3GEYJ101	M 100 OHM,J,1/16W	D0GB101JA002
R2011	ERJ3GEYJ331	M 330 OHM,J,1/16W	
R2012	ERJ3GEYJ331	M 330 OHM,J,1/16W	
R2013	ERJ3GEYJ331	M 330 OHM,J,1/16W	
R2014	ERJ3GEYJ331	M 330 OHM,J,1/16W	
R2015	ERJ3GEYJ331	M 330 OHM,J,1/16W	
R2016	ERJ6GEYJ470	M 47 OHM,J,1/10W	
R2017	ERJ3GEYJ102	M 1K OHM,J,1/16W	
R3001	ERJ3GEYJ100	M 10 OHM,J,1/16W	
R3002	ERJ6ENF5601	M 5.6KOHM, 1/10W	
R3003	ERJ6ENF3302	M 33KOHM, 1/10W	
R3004	ERJ6ENF1002	M 10KOHM, 1/10W	
R3005	ERJ3GEYJ100	M 10 OHM,J,1/16W	
R3006	ERJ6ENF1002	M 10KOHM, 1/10W	
R3007	ERJ6ENF2201	M 2.2KOHM, 1/10W	
R3008	ERJ6ENF1001	M 1KOHM, 1/10W	
R3009	ERJ6ENF2201	M 2.2KOHM, 1/10W	
R3010	ERJ6ENF1001	M 1KOHM, 1/10W	
R3011	ERJ6ENF2201	M 2.2KOHM, 1/10W	
R3012	ERJ6ENF1003	M 100KOHM, 1/10W	
R3013	ERJ6GEYJ470	M 47 OHM,J,1/10W	
R3014	ERJ3GEYJ330	M 33 OHM,J,1/16W	
R9601	ERX2SJR47	RESISTOR	
R9653	D0XGR22KA001	RESISTOR	
[CAPACITORS]			
C1001	ECJ0EF1C104Z	C 0.1UF, 16V	
C1002	EEVHB0J221U	E 220UF, 6.3V	
C1003	EEVHB0J221U	E 220UF, 6.3V	
C1004	EEVHB0J221U	E 220UF, 6.3V	
C1005	ECJ0EB1C103K	C 0.01UF, 16V	
C1006	EEVHB0J330	E 33UF, 6.3V	
C1007	ECJ0EB1C103K	C 0.01UF, 16V	

C1008	EEVHB0J330	E 33UF, 6.3V	
C1009	ECJ0EB1C103K	C 0.01UF, 16V	
C1010	EEVHB0J330	E 33UF, 6.3V	
C1011	ECJ0EF1C104Z	C 0.1UF, 16V	
C1012	ECJ0EF1C104Z	C 0.1UF, 16V	
C1013	ECJ1XF1A105Z	C 100UF, 10V	
C1014	ECJ1XF1A105Z	C 100UF, 10V	
C1015	ECJ0EF1C104Z	C 0.1UF, 16V	
C1016	ECJ0EF1C104Z	C 0.1UF, 16V	
C1017	EEVHB0J330	E 33UF, 6.3V	
C1018	ECJ0EF1C104Z	C 0.1UF, 16V	
C1019	ECJ0EF1C104Z	C 0.1UF, 16V	
C1020	ECJ1XF1A105Z	C 100UF, 10V	
C1021	ECJ1XF1A105Z	C 100UF, 10V	
C1022	ECJ1XF1A105Z	C 100UF, 10V	
C1023	ECJ0EF1C104Z	C 0.1UF, 16V	
C1024	ECJ1XF1A105Z	C 100UF, 10V	
C1025	ECJ1XF1A105Z	C 100UF, 10V	
C1026	EEVHB0J330	E 33UF, 6.3V	
C1027	ECJ0EB1C103K	C 0.01UF, 16V	
C1028	EEVHB0J330	E 33UF, 6.3V	
C1029	ECJ0EB1C103K	C 0.01UF, 16V	
C1030	EEVHB0J330	E 33UF, 6.3V	
C1031	ECJ0EB1C103K	C 0.01UF, 16V	
C1032	EEVHB0J330	E 33UF, 6.3V	
C1033	ECJ0EB1C103K	C 0.01UF, 16V	
C1034	ECJ0EB1C103K	C 0.01UF, 16V	
C1035	EEVHB0J330	E 33UF, 6.3V	
C1036	ECJ1XC1H102J	C 1000PF, J, 50V	
C1037	ECJ0EF1C104Z	C 0.1UF, 16V	
C1038	ECJ0EF1C104Z	C 0.1UF, 16V	
C1039	ECJ2XF1C225Z	C 2.2UF, Z, 16V	
C1040	ECJ2XF1C225Z	C 2.2UF, Z, 16V	
C1041	ECJ3XF1C475Z	C 4.7UF, Z, 16V	
C1042	EEVHB0J101	E 100UF, 6.3V	EEVHB0J101P
C1043	ECJ2XF1C225Z	C 2.2UF, Z, 16V	
C1044	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1045	ECJ2XF1C225Z	C 2.2UF, Z, 16V	
C1046	ECJ2XF1C225Z	C 2.2UF, Z, 16V	

C1047	ECJ1XB1C223K	C 0.22UF, 16V	
C1048	ECJ2XF1C474Z	C 0.47UF, Z, 16V	
C1049	ECJ0EB1C103K	C 0.01UF, 16V	
C1050	ECJ0EB1C103K	C 0.01UF, 16V	
C1051	ECJ0EF1C104Z	C 0.1UF, 16V	
C1052	ECJ1XC1H080C	C 8PF, 50V	
C1053	ECJ0EF1C104Z	C 0.1UF, 16V	
C1054	ECJ0EB1C103K	C 0.01UF, 16V	
C1055	ECJ0EF1C104Z	C 0.1UF, 16V	
C1056	ECUX1H120JCV	C 12PF, 50V	
C1057	ECUX1H120JCV	C 12PF, 50V	
C1058	ECJ0EF1C104Z	C 0.1UF, 16V	
C1059	ECJ1XC1H220J	C 22PF, J, 50V	
C1060	ECJ1XC1H220J	C 22PF, J, 50V	
C1061	ECJ3XB0J106M	C 10UF, 6.3V	
C1062	ECJ1XF1A105Z	C 100UF, 10V	
C1063	ECJ1XF1A105Z	C 100UF, 10V	
C1064	ECJ2XF1C225Z	C 2.2UF, Z, 16V	
C1065	ECJ1XF1A105Z	C 100UF, 10V	
C1067	ECJ3XF1C475Z	C 4.7UF, Z, 16V	
C1069	ECJ0EF1C104Z	C 0.1UF, 16V	
C1070	ECJ2XF1C474Z	C 0.47UF, Z, 16V	
C1071	F2G0J1010031	CAPACITOR	
C1072	EEVHB0J221U	E 220UF, 6.3V	
C1073	ECJ0EF1C104Z	C 0.1UF, 16V	
C1074	EEVHB0J330	E 33UF, 6.3V	
C1075	ECJ1XC1H102J	C 1000PF, J, 50V	
C1076	EEFUD0J101R	CAPACITOR	
C1077	ECJ3XB0J106M	C 10UF, 6.3V	
C1078	EEVHB0J330	E 33UF, 6.3V	
C1079	ECJ3XB0J106M	C 10UF, 6.3V	
C1080	ECJ3XB0J106M	C 10UF, 6.3V	
C1081	ECJ0EB1C103K	C 0.01UF, 16V	
C1082	ECJ0EB1C103K	C 0.01UF, 16V	
C1083	ECJ0EB1C103K	C 0.01UF, 16V	
C1084	ECJ0EB1C103K	C 0.01UF, 16V	
C1085	ECJ0EB1C103K	C 0.01UF, 16V	
C1086	EEVHB0J330	E 33UF, 6.3V	
C1087	ECJ0EB1C103K	C 0.01UF, 16V	

C1088	EEVHB0J330	E 33UF, 6.3V	
C1089	ECJ0EB1C103K	C 0.01UF, 16V	
C1090	EEVHB0J330	E 33UF, 6.3V	
C1091	ECJ0EB1C103K	C 0.01UF, 16V	
C1092	ECJ1XC1H681J	C 680PF, 50V	
C1093	ECJ0EB1C103K	C 0.01UF, 16V	
C1094	ECJ2XB1H103K	C 0.01UF, K, 50V	
C1095	ECJ0EB1C103K	C 0.01UF, 16V	
C1096	ECJ0EF1C104Z	C 0.1UF, 16V	
C1097	EEVHP1C100	E 10UF, 16V	
C1098	EEVHP1C100	E 10UF, 16V	
C1099	ECJ3XB0J106M	C 10UF, 6.3V	
C1100	ECJ3XF1C475Z	C 4.7UF, Z, 16V	
C1101	ECJ0EF1C104Z	C 0.1UF, 16V	
C1102	ECJ3XF1C475Z	C 4.7UF, Z, 16V	
C1103	ECJ0EF1C104Z	C 0.1UF, 16V	
C1104	EEVHP1C100	E 10UF, 16V	
C1105	EEVHP1C100	E 10UF, 16V	
C1106	ECJ2XF1C105Z	C 1UF, Z, 16V	
C1107	ECJ1XF1A105Z	C 100UF, 10V	
C1108	ECJ0EF1C104Z	C 0.1UF, 16V	
C1109	ECJ3XF1C475Z	C 4.7UF, Z, 16V	
C1110	ECJ3XF1C475Z	C 4.7UF, Z, 16V	
C1111	EEVHB1C101	E 100UF, 16V	
C1112	ECJ0EF1C104Z	C 0.1UF, 16V	
C1113	EEFUD0J101R	CAPACITOR	
C1114	ECJ0EF1C104Z	C 0.1UF, 16V	
C1115	ECJ0EF1C104Z	C 0.1UF, 16V	
C1116	ECJ2XF1C225Z	C 2.2UF, Z, 16V	
C1117	ECJ0EF1C104Z	C 0.1UF, 16V	
C1118	ECJ0EB1C103K	C 0.01UF, 16V	
C1119	F2G1A4700011	CAPACITOR	
C1120	F2G0J1010031	CAPACITOR	
C1121	ECJ0EF1C104Z	C 0.1UF, 16V	
C1122	ECJ0EF1C104Z	C 0.1UF, 16V	
C1123	ECJ0EF1C104Z	C 0.1UF, 16V	
C1124	ECJ0EF1C104Z	C 0.1UF, 16V	
C1125	ECJ0EF1C104Z	C 0.1UF, 16V	
C1126	ECJ0EF1C104Z	C 0.1UF, 16V	

C1127	EEVHB1C470	E 47UF, 16V	
C1128	F2G0J1010031	CAPACITOR	
C1129	ECJ0EF1C104Z	C 0.1UF, 16V	
C1130	EEVHB1C100	E 10UF, 16V	
C1131	ECJ1XC1H151J	C 150PF, 50V	
C1132	ECJ0EF1C104Z	C 0.1UF, 16V	
C1133	ECJ0EF1C104Z	C 0.1UF, 16V	
C1134	ECUX1H473ZFV	C 0.047UF, 50V	ECJ1XF1H473Z
C1135	ECUX1H473ZFV	C 0.047UF, 50V	ECJ1XF1H473Z
C1136	ECJ0EF1C104Z	C 0.1UF, 16V	
C1137	ECJ1XB1H102K	C 1000PF, K, 50V	
C1138	ECUX1H473ZFV	C 0.047UF, 50V	ECJ1XF1H473Z
C1139	ECJ1XB1H102K	C 1000PF, K, 50V	
C1140	ECUX1H473ZFV	C 0.047UF, 50V	ECJ1XF1H473Z
C1141	ECUX1H473ZFV	C 0.047UF, 50V	ECJ1XF1H473Z
C1142	ECUX1H473ZFV	C 0.047UF, 50V	ECJ1XF1H473Z
C1143	ECJ0EF1C104Z	C 0.1UF, 16V	
C1144	EEVHB0J101	E 100UF, 6.3V	EEVHB0J101P
C1145	ECJ2XF1C105Z	C 1UF, Z, 16V	
C1147	ECJ0EF1C104Z	C 0.1UF, 16V	
C1149	ECJ0EF1C104Z	C 0.1UF, 16V	
C1150	ECJ2XB1H472K	C 2700PF, K, 50V	
C1151	ECJ1XB1C103K	C 0.01UF, K, 16V	
C1152	ECJ3XF1C475Z	C 4.7UF, Z, 16V	
C1153	ECJ3XF1C475Z	C 4.7UF, Z, 16V	
C1154	ECJ0EF1C104Z	C 0.1UF, 16V	
C1155	ECJ3XF1C475Z	C 4.7UF, Z, 16V	
C1156	ECJ0EF1C104Z	C 0.1UF, 16V	
C1157	ECUX1H392KBV	C 3900PF, K, 50V	
C1158	ECJ1XB1C393K	C 0.39UF, K, 16V	
C1159	ECJ1XC1H221J	C 220PF, 50V	
C1160	ECJ0EF1C104Z	C 0.1UF, 16V	
C1161	ECJ0EF1C104Z	C 0.1UF, 16V	
C1162	ECJ0EF1C104Z	C 0.1UF, 16V	
C1163	ECJ0EF1C104Z	C 0.1UF, 16V	
C1164	ECJ0EF1C104Z	C 0.1UF, 16V	
C1165	ECJ2XC1H271J	C 270PF, J, 50V	
C1166	EEVHB1C100	E 10UF, 16V	
C1167	ECJ0EF1C104Z	C 0.1UF, 16V	

C1168	ECJ0EF1C104Z	C 0.1UF, 16V	
C1169	ECJ1XC1H181J	C 180PF, J, 50V	
C1170	ECJ0EF1C104Z	C 0.1UF, 16V	
C1171	ECJ0EF1C104Z	C 0.1UF, 16V	
C1172	ECJ0EF1C104Z	C 0.1UF, 16V	
C1173	ECJ0EF1C104Z	C 0.1UF, 16V	
C1174	EEVHB1C470	E 47UF, 16V	
C1175	ECJ1XF1A105Z	C 100UF, 10V	
C1176	ECJ0EF1C104Z	C 0.1UF, 16V	
C1177	F2G1C4700034	CAPACITOR	
C1178	ECJ0EF1C104Z	C 0.1UF, 16V	
C1179	ECJ0EF1C104Z	C 0.1UF, 16V	
C1180	ECJ0EF1C104Z	C 0.1UF, 16V	
C1181	ECJ0EF1C104Z	C 0.1UF, 16V	
C1182	ECJ0EF1C104Z	C 0.1UF, 16V	
C1183	ECJ0EF1C104Z	C 0.1UF, 16V	
C1184	ECJ0EF1C104Z	C 0.1UF, 16V	
C1185	ECJ0EF1C104Z	C 0.1UF, 16V	
C1186	ECJ0EF1C104Z	C 0.1UF, 16V	
C1187	ECJ0EF1C104Z	C 0.1UF, 16V	
C1188	ECJ0EF1C104Z	C 0.1UF, 16V	
C1189	ECJ0EF1C104Z	C 0.1UF, 16V	
C1190	ECJ0EF1C104Z	C 0.1UF, 16V	
C1191	ECJ0EF1C104Z	C 0.1UF, 16V	
C1192	ECJ0EF1C104Z	C 0.1UF, 16V	
C1193	ECJ0EF1C104Z	C 0.1UF, 16V	
C1194	ECJ0EF1C104Z	C 0.1UF, 16V	
C1195	ECJ0EF1C104Z	C 0.1UF, 16V	
C1196	ECJ0EF1C104Z	C 0.1UF, 16V	
C1197	ECJ0EF1C104Z	C 0.1UF, 16V	
C1198	ECJ0EF1C104Z	C 0.1UF, 16V	
C1199	ECJ0EF1C104Z	C 0.1UF, 16V	
C1200	ECJ0EF1C104Z	C 0.1UF, 16V	
C1201	ECJ0EF1C104Z	C 0.1UF, 16V	
C1202	ECJ0EF1C104Z	C 0.1UF, 16V	
C1203	ECJ0EF1C104Z	C 0.1UF, 16V	
C1204	EEVHB0J470	E 47UF, 6.3V	
C1205	ECJ0EF1C104Z	C 0.1UF, 16V	
C1206	ECJ0EF1C104Z	C 0.1UF, 16V	

C1207	ECJ0EF1C104Z	C 0.1UF, 16V	
C1208	ECJ0EF1C104Z	C 0.1UF, 16V	
C1209	ECJ0EF1C104Z	C 0.1UF, 16V	
C1210	ECJ0EF1C104Z	C 0.1UF, 16V	
C1211	ECJ0EF1C104Z	C 0.1UF, 16V	
C1212	ECJ0EF1C104Z	C 0.1UF, 16V	
C1213	ECJ0EF1C104Z	C 0.1UF, 16V	
C1214	ECJ0EF1C104Z	C 0.1UF, 16V	
C1215	F2G0J4700024	CAPACITOR	
C1216	ECJ1XF1A105Z	C 100UF, 10V	
C1217	ECJ1XC1H102J	C 1000PF, J, 50V	
C1256	ECJ0EF1C104Z	C 0.1UF, 16V	
C1269	ECJ0EF1C104Z	C 0.1UF, 16V	
C1270	ECJ0EF1C104Z	C 0.1UF, 16V	
C1273	ECJ3XF1C475Z	C 4.7UF, Z, 16V	
C1276	ECUX1H473ZFV	C 0.047UF, 50V	ECJ1XF1H473Z
C1277	ECJ0EF1C104Z	C 0.1UF, 16V	
C1278	ECJ0EF1C104Z	C 0.1UF, 16V	
C1279	ECJ0EF1C104Z	C 0.1UF, 16V	
C1280	ECJ0EF1C104Z	C 0.1UF, 16V	
C1281	ECJ0EF1C104Z	C 0.1UF, 16V	
C1282	ECJ0EF1C104Z	C 0.1UF, 16V	
C1283	ECJ2XC1H471J	C 470PF, J, 50V	
C1284	ECJ0EF1C104Z	C 0.1UF, 16V	
C1285	ECJ0EF1C104Z	C 0.1UF, 16V	
C1288	ECJ0EF1C104Z	C 0.1UF, 16V	
C1289	ECJ0EF1C104Z	C 0.1UF, 16V	
C1290	ECJ1XC1H180J	C 180PF, J, 50V	
C1291	ECJ1XC1H180J	C 180PF, J, 50V	
C1292	ECJ0EF1C104Z	C 0.1UF, 16V	
C1293	ECJ0EF1C104Z	C 0.1UF, 16V	
C1295	ECJ0EF1C104Z	C 0.1UF, 16V	
C1296	ECJ0EF1C104Z	C 0.1UF, 16V	
C1297	EEVHB0J470	E 47UF, 6.3V	
C1298	ECJ0EF1C104Z	C 0.1UF, 16V	
C1299	EEVHB0J330	E 33UF, 6.3V	
C1300	EEVHB0J101	E 100UF, 6.3V	EEVHB0J101P
C1301	ECJ0EF1C104Z	C 0.1UF, 16V	
C1303	ECJ0EF1C104Z	C 0.1UF, 16V	

C1304	ECJ0EF1C104Z	C 0.1UF, 16V	
C1305	ECJ0EF1C104Z	C 0.1UF, 16V	
C1306	ECJ0EF1C104Z	C 0.1UF, 16V	
C1307	ECJ0EF1C104Z	C 0.1UF, 16V	
C1308	ECJ0EF1C104Z	C 0.1UF, 16V	
C1309	ECJ0EF1C104Z	C 0.1UF, 16V	
C1310	ECJ0EF1C104Z	C 0.1UF, 16V	
C1311	ECJ0EF1C104Z	C 0.1UF, 16V	
C1312	ECJ0EF1C104Z	C 0.1UF, 16V	
C1313	ECJ0EF1C104Z	C 0.1UF, 16V	
C1314	ECJ0EF1C104Z	C 0.1UF, 16V	
C1315	ECJ0EF1C104Z	C 0.1UF, 16V	
C1316	ECJ0EF1C104Z	C 0.1UF, 16V	
C1317	ECJ0EF1C104Z	C 0.1UF, 16V	
C1318	ECJ0EF1C104Z	C 0.1UF, 16V	
C1319	ECJ0EF1C104Z	C 0.1UF, 16V	
C1320	ECJ0EF1C104Z	C 0.1UF, 16V	
C1321	ECJ0EF1C104Z	C 0.1UF, 16V	
C1322	ECJ0EF1C104Z	C 0.1UF, 16V	
C1323	ECJ0EF1C104Z	C 0.1UF, 16V	
C1324	ECJ0EF1C104Z	C 0.1UF, 16V	
C1325	ECJ0EF1C104Z	C 0.1UF, 16V	
C1326	ECJ0EF1C104Z	C 0.1UF, 16V	
C1327	ECJ0EF1C104Z	C 0.1UF, 16V	
C1328	ECJ0EF1C104Z	C 0.1UF, 16V	
C1329	ECJ0EF1C104Z	C 0.1UF, 16V	
C1330	ECJ0EF1C104Z	C 0.1UF, 16V	
C1331	ECJ0EF1C104Z	C 0.1UF, 16V	
C1332	ECJ0EF1C104Z	C 0.1UF, 16V	
C1333	ECJ0EF1C104Z	C 0.1UF, 16V	
C1334	ECJ0EF1C104Z	C 0.1UF, 16V	
C1335	ECJ0EF1C104Z	C 0.1UF, 16V	
C1336	ECJ0EF1C104Z	C 0.1UF, 16V	
C1339	EEVHB1E4R7	E 4.7UF, 25V	
C1341	EEVHB1E4R7	E 4.7UF, 25V	
C1342	EEVHB1A221	E 220UF, 10V	
C1343	EEVHB0J101	E 100UF, 6.3V	EEVHB0J101P
C1344	ECJ0EF1C104Z	C 0.1UF, 16V	
C1345	EEVHB0J470	E 47UF, 6.3V	

C1346	EEVHB1E4R7	E 4.7UF, 25V	
C1347	EEVHB0J101	E 100UF, 6.3V	EEVHB0J101P
C1348	ECJ0EF1C104Z	C 0.1UF, 16V	
C1349	ECJ0EF1C104Z	C 0.1UF, 16V	
C1350	ECJ0EF1C104Z	C 0.1UF, 16V	
C1351	ECJ0EF1C104Z	C 0.1UF, 16V	
C1352	ECJ0EF1C104Z	C 0.1UF, 16V	
C1353	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1354	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1355	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1356	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1357	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1358	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1359	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1360	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1361	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1362	ECJ2XF1C105Z	C 1UF, Z, 16V	
C1363	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1364	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1365	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1366	ECJ0EF1C104Z	C 0.1UF, 16V	
C1367	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1368	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1369	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1370	ECJ0EF1C104Z	C 0.1UF, 16V	
C1371	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1372	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1373	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1374	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1375	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1376	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1377	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1378	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1379	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1380	EEVHB1E4R7	E 4.7UF, 25V	
C1381	EEVHB1E4R7	E 4.7UF, 25V	
C1382	ECJ1XF1A105Z	C 100UF, 10V	
C1383	EEVHB1E4R7	E 4.7UF, 25V	
C1384	ECJ0EF1C104Z	C 0.1UF, 16V	

C1385	ECJ0EF1C104Z	C 0.1UF, 16V	
C1386	ECJ0EF1C104Z	C 0.1UF, 16V	
C1387	ECJ0EF1C104Z	C 0.1UF, 16V	
C1388	ECJ0EF1C104Z	C 0.1UF, 16V	
C1389	ECJ0EF1C104Z	C 0.1UF, 16V	
C1390	ECJ0EF1C104Z	C 0.1UF, 16V	
C1391	ECJ0EF1C104Z	C 0.1UF, 16V	
C1392	ECJ0EF1C104Z	C 0.1UF, 16V	
C1393	ECJ0EF1C104Z	C 0.1UF, 16V	
C1394	ECJ0EF1C104Z	C 0.1UF, 16V	
C1395	ECJ0EF1C104Z	C 0.1UF, 16V	
C1396	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1397	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1398	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1399	EEVHB1E4R7	E 4.7UF, 25V	
C1400	ECJ0EF1C104Z	C 0.1UF, 16V	
C1401	ECJ0EF1C104Z	C 0.1UF, 16V	
C1402	ECJ0EF1C104Z	C 0.1UF, 16V	
C1403	ECJ0EF1C104Z	C 0.1UF, 16V	
C1404	ECJ0EF1C104Z	C 0.1UF, 16V	
C1405	ECJ0EF1C104Z	C 0.1UF, 16V	
C1406	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1407	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1408	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1409	EEVHB1E330	E 33UF, 25V	
C1410	F2G1E3300022	CAPACITOR	
C1411	EEVHB1E330	E 33UF, 25V	
C1412	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1413	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1414	ECJ1XF1E104Z	C 0.1UF, Z, 25V	
C1415	ECJ2XF1C105Z	C 1UF, Z, 16V	
C1416	ECJ2XF1C105Z	C 1UF, Z, 16V	
C1417	ECJ2XF1C105Z	C 1UF, Z, 16V	
C1418	F2G0J1010031	CAPACITOR	
C1419	F2G1A4700011	CAPACITOR	
C1420	ECUX1H120JCV	C 12PF, 50V	
C1421	ECUX1H270JCV	C 27PF, 50V	
C2001	EEVHB0J470	E 47UF, 6.3V	
C2002	ECJ1XF1C104Z	C 0.1UF, Z, 16V	

C2003	ECJ0EF1C104Z	C 0.1UF, 16V	
C2004	EEVHB0J470	E 47UF, 6.3V	
C3001	EEVHB0J330	E 33UF, 6.3V	
C3002	ECJ1XF1C104Z	C 0.1UF, Z, 16V	
C3003	ECJ1XF1C104Z	C 0.1UF, Z, 16V	
C3004	ECJ1XF1C104Z	C 0.1UF, Z, 16V	
C3005	EEVHB0J330	E 33UF, 6.3V	
C9602	F2A1E2210032	CAPACITOR	
C9603	ECQE6473KF	CAPACITOR	
C9610	F0C2G1050002	CAPACITOR	
C9617	F0C3C4720002	CAPACITOR	
C9618	F0C2J1540003	CAPACITOR	
C9619	F0C2J1540003	CAPACITOR	
[OTHERS]			
A1	K1MN30B00109	30P CONNECTOR	
A2	K1MN30B00109	30P CONNECTOR	
A3	K1MN30B00109	30P CONNECTOR	
A4	K1KA05B00153	5P CONNECTOR	
A6	K1KA14B00073	14P CONNECTOR	
A7	K1KB05A00027	5P CONNECTOR	
A8	TJSF21710	10P CONNECTOR	K1MN10B00060
A9	K1KA02B00051	2P CONNECTOR	
A11	K1KA02B00051	2P CONNECTOR	
A12	K1KA02B00051	2P CONNECTOR	
A15	TJSF43703	3P CONNECTOR	K1KA03B00098
A16	TJSF43703	3P CONNECTOR	K1KA03B00098
A17	TJS6A8780	3P CONNECTOR	K1KA03B00006
A18	TJSF43703	3P CONNECTOR	K1KA03B00098
A19	TJS6A8780	3P CONNECTOR	K1KA03B00006
B1	TJSF45504	3P CONNECTOR	
B2	K1KB05A00027	5P CONNECTOR	
B3	K1KB07A00017	7P CPNNECTOR	
K1	K1KA02A00104	2P CONNECTOR	
S1	K1MN10B00116	10P CONNECTOR	
S2	K1KA05B00150	5P CONNECTOR	
F9101-1	TJC6320	FUSE HOLDER,SMALL	K3GE1ZB00002
F9101-2	TJC6320	FUSE HOLDER,SMALL	K3GE1ZB00002

F9101	K5Y502B00002	FUSE	⚠
JK1001	K1CB205B0001	S-VIDEO/VIDEO IN TERMINAL	
JK1002	K2EZ8B000002	SERIAL TERMINAL	
JK1004	TJSF45015	RGB1 IN TERMINAL	K1FB115B0058
JK1005	TJSF45015	RGB2 IN/RGB1 OUT TERMINAL	K1FB115B0058
JK1009	K2HA202B0025	AUDIO IN TERMINAL	
JS1001	ERJ2GE0R00	M 0 OHM, 0.063W	
JS1002	ERJ2GE0R00	M 0 OHM, 0.063W	
JS1003	ERJ6GEY0R00	M 0 OHM,J,1/10W	
JS1004	ERJ6GEY0R00	M 0 OHM,J,1/10W	
JS1005	ERJ6GEY0R00	M 0 OHM,J,1/10W	
JS1006	ERJ6GEY0R00	M 0 OHM,J,1/10W	
JS1007	ERJ6GEY0R00	M 0 OHM,J,1/10W	
JS1008	ERJ6GEY0R00	M 0 OHM,J,1/10W	
JS1009	ERJ6GEY0R00	M 0 OHM,J,1/10W	
JS1010	ERJ6GEY0R00	M 0 OHM,J,1/10W	
N9101	K2AA2B000006	AC INLET	⚠
RM2001	B3RAD0000058	REMOTE CONTROL RECEIVER	
RM3001	B3RAD0000036	REMOTE CONTROL RECEIVER	
S2001	EVQPLHA15	SWITCH	
S2002	EVQPLHA15	SWITCH	
S2003	EVQPLHA15	SWITCH	
S3001	EVQPLHA15	SWITCH	
S3002	EVQWHA50K	MICRO SWITCH	
S9601	T115AR3U3	SWITCH	⚠
S9602	A9BZ00000010	SPARK GAP	
T9601	G4BYA0000006	TRANS	
T9602	G0ZZ00002173	COIL	
T9603	G0ZZ00002173	COIL	
T9604	G4F2A0000001	TRANS	
X1002	H0D162500003	CRYSTAL	
X1003	H0J737400007	CRYSTAL	
X1006	H1A6505B0006	CRYSTAL	LC76U/E
	H1A4405B0009	CRYSTAL	LC56U/E
RTL	TNPA2810	CIRCUIT BOARD S1	
RTL	TNPA2811	CIRCUIT BOARD S2	
RTL	TXANP01VJT2	CIRCUIT BOARD A	LC76U/E
	TXANP01VJT3	CIRCUIT BOARD A	LC56U/E

RTL	TXANP03VJT2	CIRCUIT BOARD K	
	TXANP02VJT2	POWER UNIT	
	TXANP04VJT2	BALLAST UNIT (B/Q-PCB)	